ENGINEERING NEWS-RECORD

NOV. 1, 1956

PRICE 35 CENTS
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► [illegible] sign saves money p. 38
► Mile-long [illegible] to save pier p. 36

New span record set in welded girders p. 43

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E B POWER
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Huetex is an ideal low-maintenance, high-quality spandrel material. Lasting beauty is assured by the permanence of ceramic enamel color protected from the elements by glass. And the glass is tempered to increase its mechanical and impact strengths. *Huetex* can be used with a variety of framing systems and insulation. For descriptive folder, write Dept. H-3116, Libbey·Owens·Ford Glass Company, 608 Madison Ave., Toledo 3, Ohio.

**ETL Report No. 362625, July 23, 1956.*

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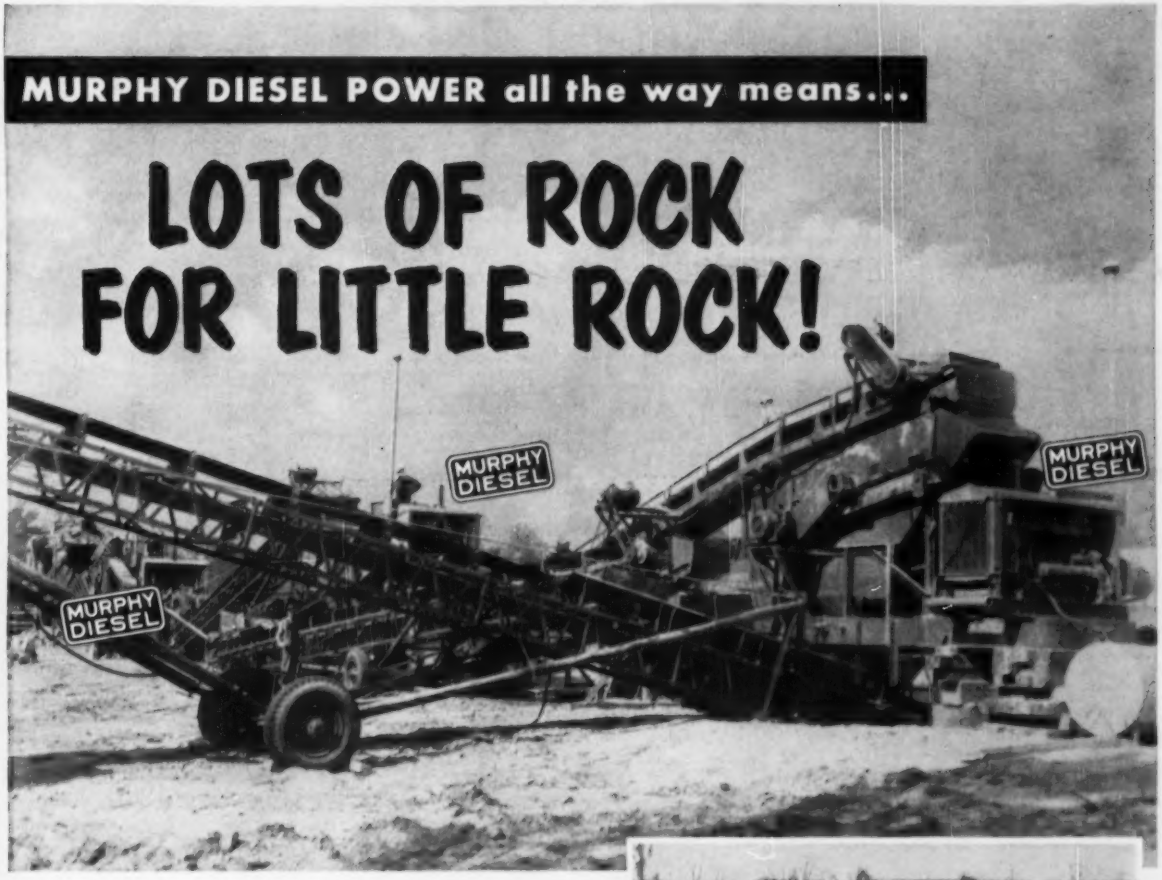

• It's Murphy Diesel Power throughout for producing aggregate with this equipment owned and operated by Reynolds and Williams, Little Rock, Arkansas. The crushing plant consists of a Pioneer 153 PRL primary, an SP-101 intermediate crushing and screening plant, and a 154 VE secondary roll crusher. At right angles to the secondary unit a 30-foot discharge belt leads to a separate bin. The crushing and screening units utilize Murphy Diesel Models 11, 20, and 22, while power for ten motors on conveyor and feeder belts is supplied by a Model 122, 135 K.W. generator set. The Murphy-powered Northwest Shovel shown at the quarry face is one of several owned by this producer. Photos were taken in the Reynolds and Williams quarry near Alpine, Arkansas.

Whatever the size of your plant, you want maximum output at minimum cost. It's yours with Murphy's greater fuel economy, longer trouble-free life and dependability unmatched by any engine of comparable size.

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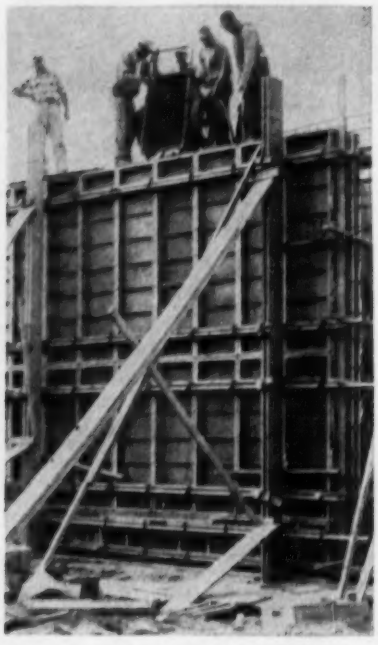

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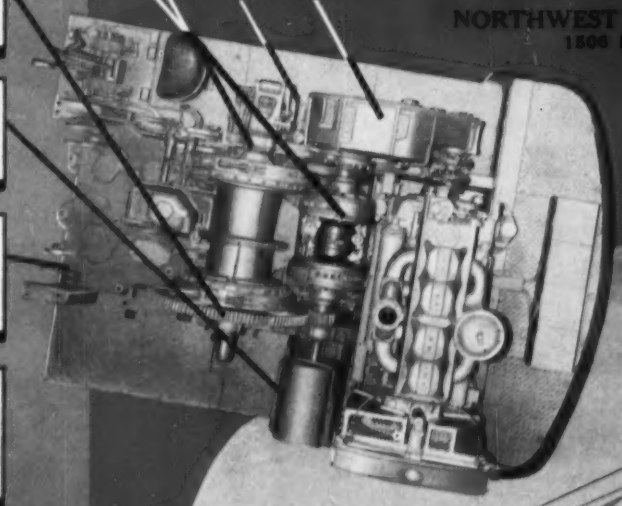

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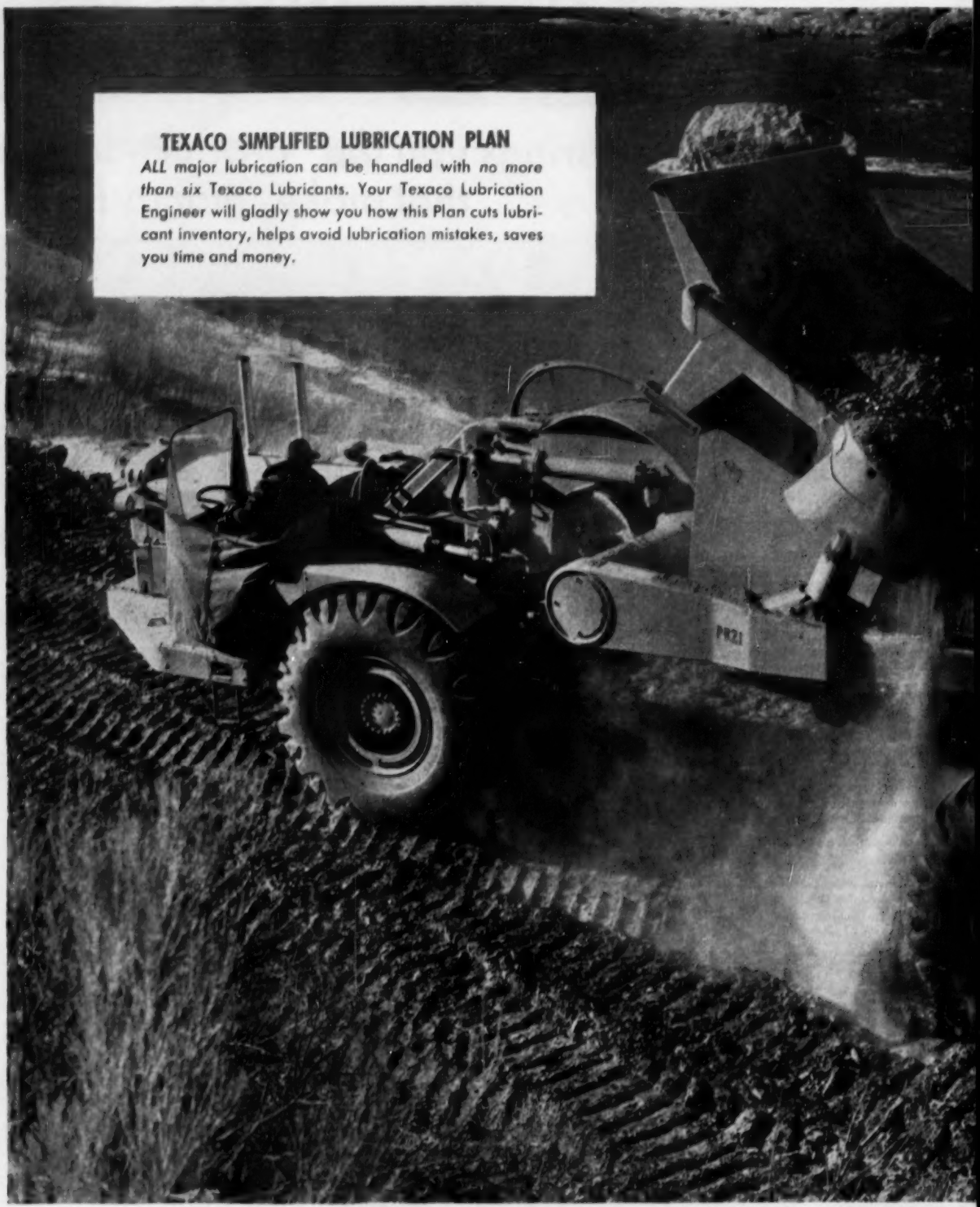
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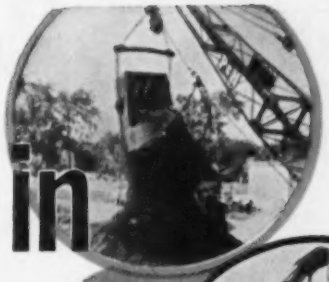

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Full-size heavy-duty bucket is used by the Miti-Mite dragline attachment. For longer reaches, inserts in 5 and 10 foot lengths are available. Lattice-type boom provides strength without excess weight for faster cycles and greater payloads.

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Reader Comment

Local Views on Columbia Power

SIR—Shortly after reading the article "Impasse Over Columbia River Power" (ENR Aug. 23, p. 21), I had the pleasure of driving up along the Fraser and Thompson rivers and down near the Columbia and Kootenai rivers in British Columbia and also stopping at some of the dams and proposed sites along the Columbia in Washington.

Many people in British Columbia were familiar with the proposed unit of the project in their local area but seemed to have no knowledge of the overall project. However, the summation of their individual understandings agreed closely with the national governmental view presented in the article.

The article made no attempt to state the reaction of the public towards the Columbia-Fraser Project. Parties that seemed familiar with the Mica Dam unit of the project were indignant about an offer which they claimed was made by United States (no specific agency mentioned) to construct the Mica Dam and power plant for the privilege of obtaining water when needed for power generation in the lower Columbia but giving them all the power generated.

I have always found the people of Canada to be proud and independent. They do not want charity or financial aid but they will demand all of their rights.

W. H. HOLMES
Civil Engineer
Sacramento, Calif.

[EDITOR'S NOTE: The Mica Dam offer Mr. Holmes refers to is the one made by the Puget Sound Utilities Council to the government of British Columbia in 1954 which was detailed in ENR Jan. 20, 1955, p. 47. The council is composed of five Washington State public utilities.]

Engineer Must Design Formwork

SIR—Recently, there have been quite a number of serious failures in reinforced concrete building construction. These failures are no doubt due to several

Engineering News-Record welcomes expression of opinion from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance.

Letters should be addressed: Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

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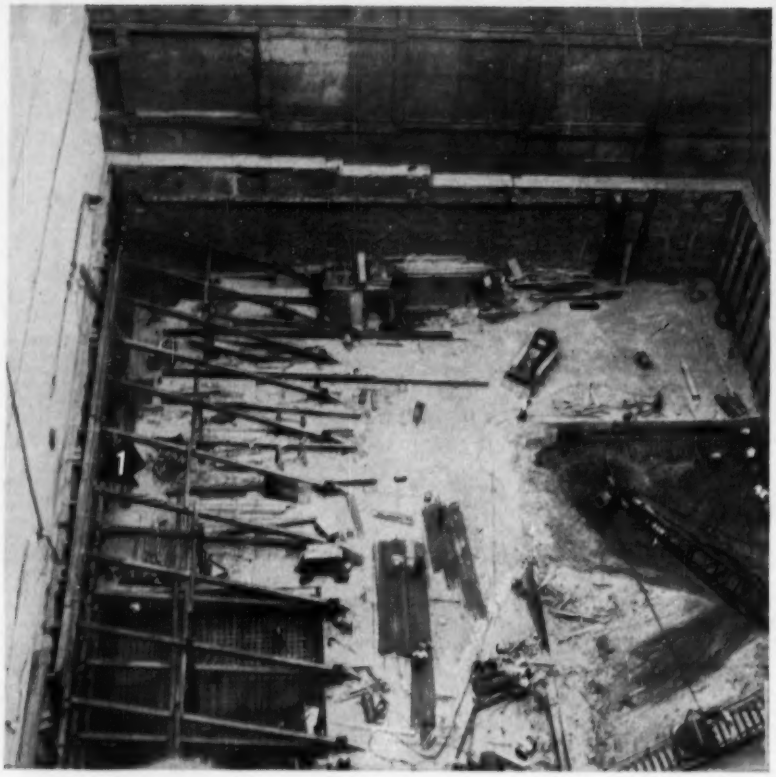

1. EXISTING STORE UNDERPINNED AND BRACED. STREET BRACING DOES NOT SHOW IN THIS PICTURE. MINIMUM DEPTH OF CUT 30 FT. AREA 125 x 180 FT.

Project: Rebuilding Jordan Marsh, Boston Department Store, a section at a time.
General Contractor: Vappi & Co., Inc., Cambridge, Mass.
Architects: Perry, Shaw & Hepburn—Kehoe and Dean, Boston.
Engineer: Maurice A. Reidy, Boston.

This job is being done in separate sections, so that Jordan Marsh can continue business during construction. Shown here is the foundation for Section III, handled (as were the others) by Spencer, White & Prentis. Since completion was desired in time for the store's holiday-selling season, our men and machines worked round-the-clock for 3 months to excavate and pour mat on schedule. Photo shows the methods used to prevent movement of adjacent buildings and streets.

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. . . Reader Comment

contributing causes, not the least of which is the lack of proper or sufficient diagonal bracing to support the formwork during construction. The most recent of such failures in the Mid-South was the 5-story reinforced concrete parking garage in Jackson, Miss., in which a 20x30 ft bay collapsed on Oct. 3 (ENR Oct. 11, p. 25).

Any kind of structural building failure is a serious blow to the prestige of the structural engineering profession as well as to the contractors involved. As things stand today, a building contractor is not required to submit plans to the engineer indicating a safe method of bracing formwork for concrete building construction. Proper shoring and bracing is definitely an engineering task for a licensed professional engineer. The time has now come when building codes and laws must require that a licensed engineer approve plans and details for formwork and bracing for concrete building construction. This review of formwork and bracing details could be done by the structural engineer who designed the building, or by another licensed engineer.

Also, a set of engineered plans is no guarantee against failures unless proper engineering inspection is used to see that the formwork and bracing plans are executed as indicated. This need for professional engineering inspection of formwork and bracing must also be written into law.

ZACHARY SHERMAN
Consulting Engineer
Associate Professor of Civil Engineering
University of Mississippi
University, Miss.

Sources of Beam Cracking

SIR—The failure of continuous reinforced concrete roof beams reported in ENR Sept. 27, p. 28 would indicate that there is still a problem in shear not completely understood by some designers. American codes maintain that shear may be divided between concrete and web reinforcing. That is correct to some extent if there is a bending moment at the section that will keep the compression zone uncracked. At a point of inflection, however, there is no such concrete in compression, and the concrete section is, therefore, likely to be either uncracked or cracked through completely.

The assumption of interaction of concrete and web reinforcing is evidently quite erroneous for a cracked section. If a crack forms, the web steel must take almost all the shear. If the steel is not strong enough for that purpose, the beam will fall. The only help the web reinforcing will get is the

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U-264-6	78 @ 2400	192	264.3	3 11/16 x 4 1/8
U-308	87.5 @ 2400	229.5	308.2	3 13/16 x 4 1/2
U-370	104 @ 2200	288	372	4 3/8 x 4 1/2
U-450	126 @ 2200	323	450.9	4 3/8 x 5
[illegible]	133 @ 2200	384	500	4 1/2 x 5 1/4

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27-second loading.

deliver EXTRA "PAY-DIRT"

Note how extra-high Payscraper apron-lift provides obstruction-free room for fast unloading. And straight-line, power-saving ejector reeving leaves more power on Payscraper wheels, to speed dumping and spreading.

Left to right: John L. Jersey; J. M. Harris, Supt.; Dale Jersey, Supt.; and William Donaco, General Supt. of the job.

Air-assisted clutch; big, safe, 4-wheel air brakes; exclusive Hydro-Steer — all contribute to give the Payscraper its outstanding operating ease and safety. The two Payscrapers and two other towed scrapers are push-loaded by the TD-24.

. . plus super-fast get-away . .

on industrial district job

for John L. Jersey, Inc., Portland, Oregon

John L. Jersey, Inc., Portland, Oregon, uses International "55" Payscraper loading and transport speed—and famous TD-24 *follow-through* push-loading—to highball the 833,000-cu-yd Rockwood Industrial District contract to timely, profitable completion.

In only 27 stop-watch-certified seconds, and only 60 to 100 feet of travel, each "55" Payscraper's bowl boils heaping full of gravelly soil—and the "55" is off to the fill at up to 20 mph!

"More dirt on the fill"—more dough in the till

Owner John L. Jersey reports: "Last year we put over 2,000 hours on both our '55' Payscrapers with cable replacements as the only necessary repairs. This year we got two more '55's' and a new TD-24 to load them fast. I believe '55's' are the most scraper for the money.

"We've found our '55's' load in 25-30 seconds. They're simple and easy to maintain and operate. Quick, full-load Payscraper get-away means more dirt on the fill, and that's what we get paid for."

Largest of its kind in the Pacific Northwest, the triple-terraced, 188-acre Rockwood project, on the Columbia river, is a Union Pacific Railroad Co. development—to attract new industry to the Portland area.

Prove to yourself no other rubber-tired dirt-mover gives you the new Payscraper combination of capacity-adding performance features! See your International Construction Equipment Distributor for a demonstration!

See you at the ROAD SHOW—CHICAGO—Jan. 27 to Feb. 4, 1957

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INTERNATIONAL® Construction Equipment

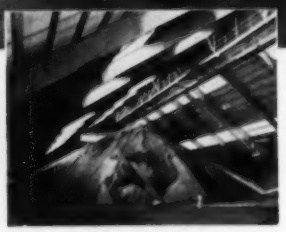
International Harvester Company, 180 N. Michigan Avenue, Chicago 1, Illinois

A COMPLETE POWER PACKAGE INCLUDING: Crawler, Wheel, and Pipe-Boom Tractors . . . Self-Propelled Scrapers and Bottom-Dumps . . . Crawler and Rubber-Tired Loaders . . . Off-Highway Trucks . . . Diesel and Carbureted Engines . . . Motor Trucks

Bulk Chemical Storage by the SAUERMAN Method

Reclaiming Triple Superphosphate to Hopper

How Sauerman Scraper Storage Reduces Costs



Overall View of Storage

200,000 tons of triple superphosphate are produced each year in this new Florida plant. It is delivered by overhead conveyor to a 329′ x 146′ storage building of 35,000 ton capacity. The material is then stockpiled and reclaimed by a 2½ cu. yd. Sauerman Scraper at a rate of 150 tph.

Here's how a Sauerman Machine Cuts costs:

One operator, located in a safe station overseeing the entire area, can recover practically 100% of all stockpiled material.

All highly machined parts, hoists and motors can be located outside of the building and protected from corrosion and dust.

When parts are replaced—sheaves, clutch or brake linings—the machine is restored to practically new condition, even though it may be twenty or more years old.

Only the Crescent scraper and cables contact the material. The scraper machine can be designed to operate the scraper on top of non-caving material. This allows the scraper to break down any high faces that may be standing.

Sauerman Storage Machines are built for hourly capacities of from 20 to 600 cu. yds. A partial list of producers and manufacturers using some type of Sauerman equipment includes:

Consumer Cooperative Assn.
Crawford Chemical Co.
Davison Chemical Co.
Division of W. R. Grace & Co.
Duval Sulphur & Potash Co.
F. S. Royster Guano Co.
International Minerals & Chemical Corp.
Lion Oil Co.
Potash Company of America
Tennessee Farmers Cooperative
Virginia-Carolina Chemical Corp.
Southern Agricultural Fertilizer Co.

For ways to reduce your material handling costs, write to Sauerman's experienced engineers. Request Catalog E, *Bulk Storage by DragScraper*, plus Field Reports on the handling of your material by Sauerman Machines.

SAUERMAN BROS., INC.
632 SO. 28th AVE.
BELLWOOD, ILL.
Cable CABEX—Bellwood, Ill

Crescent Scrapers • Slackline and Tautline Cableways • Durolite Blocks

. . . Reader Comment

relatively small dowel resistance of horizontal reinforcing. Any appreciable help from interlocking of aggregates across a crack is hardly to be expected.

If at first we assume no horizontal force from shrinkage and temperature deformations to act at the point of inflection of a continuous beam, we then have only the vertical resultant shear to contend with. Concrete is relatively strong in true shear; so it is only the diagonal-tension component that is dangerous.

There generally is some shrinkage stress in a beam, and it causes tension in the concrete, both directly and because of shortening of the frame as a whole. In addition, there may also be temperature stresses of considerable magnitude in long-span rigid frames. If we add the diagonal components of shrinkage and temperature stresses to the diagonal tension from shear, we may easily observe that the concrete could crack even when the nominal shear stress is fairly low. That is probably what happened in the cases reported in your magazine.

It is not certain that the 45-deg direction is the most dangerous one for the combined action of shear, shrinkage and temperature deformation. The crack is likely to be steeper than 45 deg as would appear from the picture in your report. So stirrups, besides being of adequate strength, should also be closely spaced at inflection points.

E. M. Rensaa
Consulting Engineer
Rensaa & Minsos
Edmonton, Canada

CALENDAR

Cleveland Engineering Society, Construction Div., fourth annual construction conference, CES headquarters, 2136 E. 19th St., Cleveland, Nov. 12

West Coast Noise Symposium, third annual meeting, noise in buildings, Institute of Aeronautical Sciences Auditorium, Los Angeles, Calif., Nov. 12-13.

American Public Health Association, annual convention, Convention Hall, Atlantic City, N. J., Nov. 12-16.

Building Research Institute, conference on windows and glass in the exterior of buildings, United States Chamber of Commerce, Washington, D. C., Nov. 14-15.

American Municipal Association, Annual American Municipal Congress, Chase and Park Plaza Hotels, St. Louis, Nov. 26-28.

American Road Builders Association, annual meeting and road show, Chicago Amphitheater, Jan. 28-Feb. 2.

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ENGINEERING NEWS-RECORD

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Back issues of ENGINEERING NEWS-RECORD *are generally available for the previous six months. Price 35¢ each copy except Annual Cost Issue. Semi-annual indexes will be sent on request.* ENGINEERING NEWS-RECORD *is also indexed in Industrial Arts Index and Engineering Index.*

THE CONSTRUCTION WEEK

"DROP YOUR ROCKS HERE"—If things work out according to plan, Michigan's Midland County is going to transform a free rock pile into a 52-prisoner jail. Architect Adlen B. Dow says the jail will take about 7,000 rocks—and they must be fieldstone, esthetically acceptable, and no smaller than a football. The rocks have to be free because the cost of quarrying, loading and unloading fieldstone would run the price far beyond the $700,000 allotted for the job. The county already has erected a sign on the courthouse lawn directing collectors to "Drop Your Rocks Here." If enough stones are gathered the county will award contracts this month and start construction in January.

One county official was quoted as saying, "Only time will tell if we have rocks in the jail or in our heads."

THE BIGGER THEY COME—One of these days something is going to have to be done about the length of automobiles—so thinks John D. Gillis, chairman of Detroit's Committee on Parking. The city's parking lots are out of step with the new, longer cars. And some of the bigger cars overlap parking-meter spaces so that meters will have to be set farther apart when more 1957 models hit the streets.

SEARCH FOR A STANDARD—The newly established Consulting Engineers Council, federation of local associations of consulting engineers, has been in business long enough to begin seeking a proper insignia. "The insignia should express the professional service aspect . . . draftsman's tools are suitable for incorporation," says the council. Entries (to Room 1915, 220 East 42 St., New York City) will be judged after Jan. 15, $100 to go for the accepted design.

THIRD TALLEST TOWER—Erection has started on the world's third tallest tower. To be 1,379 ft high, it will be used for television broadcasting by WSM-TV Nashville, (the record is held by KWTV's tower in Oklahoma City—1,572 ft high—and the runner up—1,521 ft high—is in Dallas). Blaw Knox Co., fabricator of the new tower, reports that use of a low-alloy, high strength steel reduces the weight 100 tons, or about 30%, from what it would have been with ordinary structural steel.

BIRTHDAY OF A BRIDGE—Last week—on Oct. 25—the Port of New York Authority marked the 25th anniversary of the opening of George Washington Bridge, linking Manhattan Island with New Jersey. The bridge carried 5.5 million vehicles in 1932, its first year of operation, compared to 35.8 million in 1955. And it's this traffic growth that has sparked plans for a new lower deck.

200 PIECES OF EQUIPMENT---TO BATTLE ROCK, MUCK AND EARTH---

ON 9-MILE STRETCH OF MASSACHUSETTS TURNPIKE!

CARVING OUT 800,000 YARDS OF ROCK—plus 5 million yards of earth—is taken in stride by Grandview Construction Corp. Their equipment "army" on the Massachusetts Turnpike includes over 50 rear and bottom dumps, 17 bulldozers, 18 compactors, 15 compressors, over a dozen shovels, draglines and cranes — and all sorts of special equipment. The tires used in this rocky cut are Goodyear's super-tough Hard Rock Lug.

THOROUGH MAINTENANCE A SECRET OF SUCCESS—This earth-moving monster has been overturned to simplify underside repairs. Tires are All-Weather Earthmover. Like all Goodyear tires, these are readily recappable—just contact your Goodyear dealer.

FAST-STEPPING OUTFITS END TUBE AND FLAP TROUBLES

with Goodyear 3-T Nylon Cord

TUBELESS TIRES!

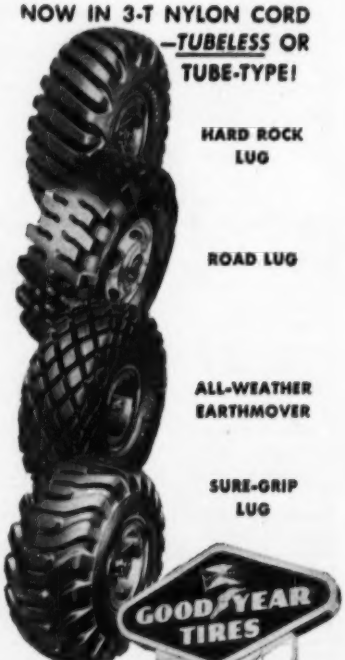
Ever consider what tube and flap troubles can cost in down time—plus cost of *replacing* tubes, long before tires are worn out?

And Goodyear TUBELESS tires save in many other ways! They run cooler—injuries are easy to detect—blowouts rarely occur—many repairs are simpler than ever before—construction and assembly are *airtight*—mounting of all sizes is quick and sure—and the simpler valve parts are re-usable!

Goodyear TUBELESS tires and rims are standard (or can be specified) on most sizes and types of new equipment—check your equipment manufacturer when purchasing. For moneysaving change-over of present equipment, simply contact a Goodyear dealer.

Goodyear, Truck Tire Dept., Akron 16, Ohio

NOW IN 3-T NYLON CORD —*TUBELESS* OR TUBE-TYPE!



Look for this nearby Goodyear dealer sign for better tire values—better tire care.

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MORE TONS ARE HAULED ON GOODYEAR TRUCK TIRES THAN ON ANY OTHER KIND

Road Lug, All-Weather, Sure-Grip—T. M.'s The Goodyear Tire & Rubber Company, Akron, Ohio

WASHINGTON OBSERVER

Federal spending on construction will rise regardless of who wins next week's races for the White House and seats in Congress.

You can look for an increase of at least $1.5 billion in the year beginning next July 1. This increase in spending is built into the Eisenhower program, and won't be cut back even if the Democrats score.

Military construction will stay at its $2-billion-a-year spending level for at least another year.

The new highway program will shoot up federal outlays by $500 million for fiscal year 1958.

Slum clearance, housing, school, college, hospital programs will all benefit from a bigger flow of federal money.

Dams and other projects already committed can only go upward. The Upper Colorado Project, for instance, is just beginning, so are others.

A couple of programs could be different if the Democrats win. Right now, the Democrats show themselves much stronger for federal spending for atomic power, although the Administration has seemed to switch lately toward a bigger reactor building program. Partnership is another issue on which the spending picture could be different if the Democrats take power. They might insist on federal dams at such places as Hells Canyon, but on the other hand, they might go for projects for which local participation gets a project started more quickly. Half a dozen partnership proposals have been awaiting Congressional action for the past couple of years.

•

A recommendation on standardized design of bridges and culverts is one possible result of a new survey being conducted by the Bureau of Public Roads. The bureau is studying some 60 highway bridges and structures to help determine standards and criteria for guidance of states and the bureau in their planning and design. But officials are also trying to discover if there is any provable advantage from standardized designs. No conclusions are expected before May or next year.

•

A highway test loop for passenger cars and pickup trucks is to be made part of the AASHO road test project in Illinois. This fifth loop—to be financed entirely by the Bureau of Public Roads—is to provide information on cost of building roads for 2,000 lb and 6,000 lb axle loadings; the other four loops will test effect of single axle loads up to 30,000 lb, and tandem axle loads up to 50,000 lb.

Tests are to begin next summer and run for two years. Built-in recording and measuring devices will yield useful information before the tests are finally finished.

•

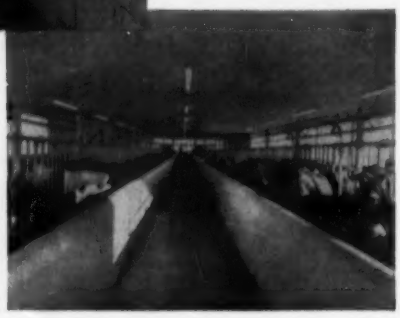
Davis-Bacon blacklist of contractors has skyrocketed under GOP, Secretary of Labor Mitchell tells building trades members. He reports that under the Davis-Bacon Act 114 contractors have been blacklisted in the last 44 Republican months—which he compares to "only four in the 17-year period" before Eisenhower came in. A contractor found violating wage and working conditions specified under the law may be barred from government jobs for a period of three years.

•

Many Hoover Commission recommendations for housing have been turned down by the Administration. According to a new report just issued by the White House, 21 of 54 recommendations made for government lending agencies were rejected. That is, Eisenhower will not include these in reorganization plans that take effect unless Congress turns them down.

Bottoms Up!

Inverted Double-T, Precast, Prestressed 'Incor' Roof Slabs Provide Added Sanitary Feature in 106-Cow Barn



DAIRY BARN
H. W. RUCKS & SONS,
Deerfield Beach, Florida

General Contractor:
DONALD F. GRUBB,
Opalocka, Fla.

Prestressed Members Designed by:
LAKELAND ENGINEERING ASSOCIATES,
Lakeland, Fla.

Members Precast and Prestressed by:
R. H. WRIGHT & SONS, INC.
Ft. Lauderdale

Members Installed by:
POSTON STEEL ERECTORS, INC.
Ft. Lauderdale

● Here is a unique barn, recently completed for a progressively-minded dairyman who wanted the advantages of all-concrete construction, including a ceiling that is easy to keep meticulously clean. The designer came up with the economical answer by installing precast, prestressed double-T roof slabs *upside down*.

To provide a clear, unobstructed milking area in this 106-cow barn, a total of 55 double-T prestressed roof slabs, lengths up to 37½ ft., widths up to 4 ft., were installed in inverted position. Slabs of somewhat smaller dimension were placed in conventional position over the adjoining milk-processing and feed-storage rooms.

The entire roof, pitched 6 in. toward the rear for drainage, was covered with built-up roofing.

This building, with 13,000 sq. ft. of space, all usable, cost $52,000 complete. The inverted roof in place cost $1.35 per sq. ft., or about 40¢ more per sq. ft. than the upright double-T roof.

Roof members were fabricated under factory-controlled conditions in the casting yard, using 'Incor'* 24-Hour Cement for the assembly-line speed and precision which spell utmost economy in fabrication. Smooth concrete ceiling surfaces reflect the workability and all-around quality of America's FIRST high early strength portland cement, providing an added measure of sanitation in a truly modern barn. *Reg. U.S. Pat. Off.

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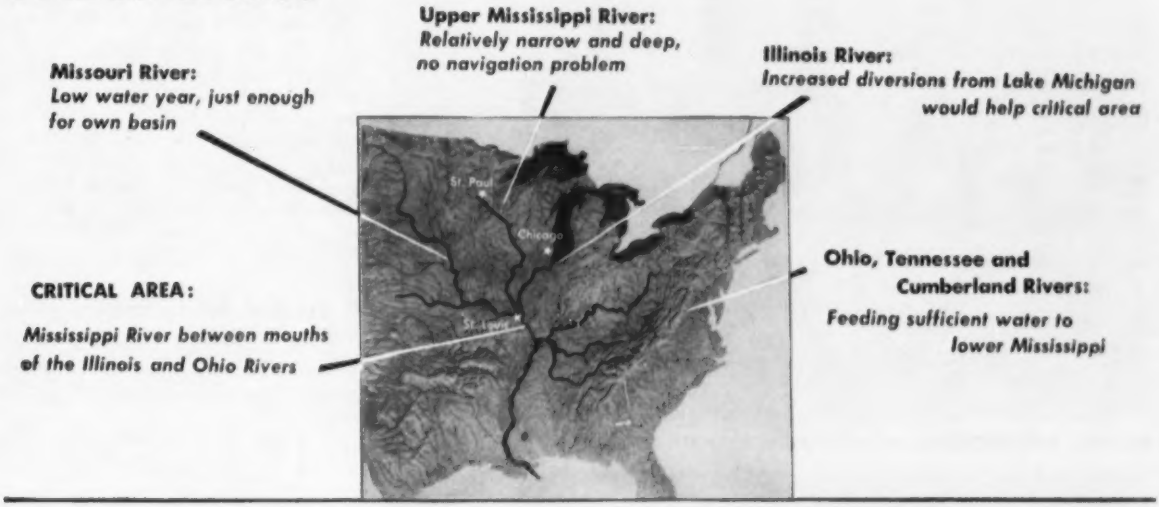
Water Crisis:


Upper Mississippi River:
Relatively narrow and deep, no navigation problem
Missouri River:
Low water year, just enough for own basin
Illinois River:
Increased diversions from Lake Michigan would help critical area
St. Paul
Chicago
St. Louis
CRITICAL AREA:
Mississippi River between mouths of the Illinois and Ohio Rivers
Ohio, Tennessee and Cumberland Rivers:
Feeding sufficient water to lower Mississippi

Low Flow a Threat on the Mississippi

This week in St. Louis, time was running out on Ol' Man River.

With the water at 2.6 ft below the established datum, if there's no rain by Nov. 20 the Mississippi will drop to −6.2 ft to match the record low water level set in 1940. And assuming there's no rain by Dec. 1—the only safe assumption—a −7.0 level is predicted.

Below −5.5, municipal water supplies in the East St. Louis area would have real trouble getting water, while in St. Louis and its surrounding county the problem would be in treating it.

At −7.0, navigation, already hampered by low water, will cease for all practical purposes, causing serious shortages of fuel oil and coal in the Chicago and upper Mississippi Valley areas.

Below −7.0, power generation, needing cooling water, will be cut to an emergency degree in the St. Louis metropolitan area.

Below −7.0, industries needing water for process or cooling will feel the pinch along with steam-power stations.

In the face of this crisis, which threatens to be so much worse, the Corps of Engineers in St. Louis, Chicago, Omaha and Washington is at work on the ways to ease, if not avert it. The hope is to keep river level in this critical reach around St. Louis from dropping below −7.0, and without rain, it looks like a lost cause.

Missouri River flow helps a good bit. Without it, the stage at St. Louis would have been down to −6.0 last week. But the Missouri, too, has felt the effect of prolonged drought, and this is the time for the big main-stem dams on the river to begin their seasonal pinchdown on flow to increase storage. Summer release of 34,000 cfs at Gavins Point Dam is being cut to 15,000 cfs. On Nov. 15 this is to be cut further to 7,500 cfs.

• Help From Upstream

On the Mississippi itself the Corps began last Friday to drop the depth of 26 navigation pools from Alton, Ill. (just above St. Louis) all the way up to Minneapolis-St. Paul. This will be accomplished by Nov. 15. The upper river will be lowered from 9-ft to 8-ft navigation depth for the benefit of downstream St. Louis and the 175-mi reach of the river from there southward to Cairo, Ill. (Confluence with the Ohio there relieves the problem.)

The Illinois River, with its canal connections to Lake Michigan at Chicago, is a hope for improving low flow in the Mississippi. But Chicago is already helping all it can—legally.

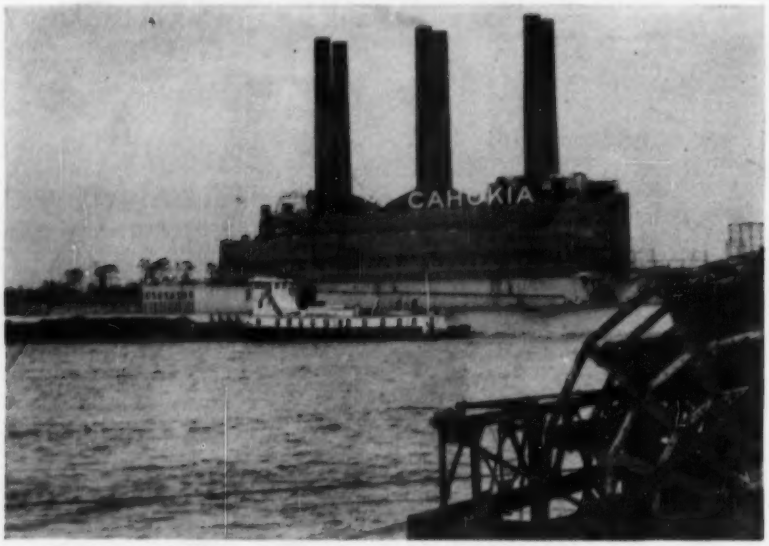
Beginning Tuesday last week, and for 10 days at least, the Chicago Sanitary District is increasing the diversion of Lake Michigan water into the Illinois waterway system to 2,600 cfs. Maximum allowable set by Supreme Court order is an annual average of 1,500 cfs. However, according to figures compiled by Brig. Gen. Paul D. Berrigan, Division Engineer, North Central Division, the Sanitary District's diversion so far this year has averaged only 1,488 cfs. This cushion of 12 cfs over the past 10 months will permit the 2,600 cfs diversion temporarily without violating the court's limitation.

Normally, diversion this time of the year is at the rate of 900 cfs which means that the rate of diversion has been nearly tripled for the past 10 days. Army Engineer figures reveal that this increased diversion will raise the water level in the Mississippi River at Alton, Ill., just above St. Louis, by 2¼ in.—and in barge operation even 2½ in. more navigable depth is important.

In Chicago, Gen. Berrigan issued this statement: "The situation is critical, and the pools are being lowered only as a last resort. Navigation has already been severely reduced because of inadequate depths over the lower sill of the Alton Lock (Dam 26). Furthermore, as the tailwater (river below the dam) continues to fall, it also becomes advisable to lower the pool above the dam to protect the structure from excessive hydrostatic pressure.

"The St. Louis-East St. Louis area is faced with a serious water supply problem if natural flows in the Missouri, Mississippi or Illinois Rivers are not materially increased as a result of substantial rainfall. Two-thirds of the water

. . . River-level drop threatens St. Louis



POWER PRODUCTION and navigation are in for real trouble as . . .

LOW WATER plagues the area. Water management can only forestall emergency.

in the Mississippi River at St. Louis has come from the Missouri River; largely from Corps of Engineer storage reservoirs, Fort Peck, Garrison and Fort Randall. However, this discharge was to be reduced to less than half its present volume beginning about Oct. 26 as Missouri River reservoirs were scheduled to go into winter operating schedules. An early freeze-up would reduce flows still farther and increase the severity of the problem."

In Omaha, the position of Maj. Gen. G. E. Galloway, Missouri River Division Engineer, is that he can not cut loose Missouri River water to help St. Louis. Dams on the Missouri were built as part of the Pick-Sloan Plan for benefit of the Missouri Basin. The manner in which Missouri River water is allocated is set out a year ahead by cooperative agreement among the ten states and seven federal agencies represented on the Missouri Basin Inter-Agency Committee.

Aside from legal restrictions on its manipulation, the Missouri itself is short of water. Storage at its four dams today is about 13.5 million acre-ft. This is less than the 16 million acre-ft stored behind Fort Peck Dam alone in 1953. There have been three years of drought in the area. Navigation had to shut down a month early, and reduced flow of the Missouri hit its mouth, near St. Louis, last week.

In Washington, there is only confirmation of what the district and division offices can and cannot do to alleviate conditions around St. Louis. Nobody in the Chief of Engineers office has come out and said it, but it is indicated that releases from the Upper Missouri might be ordered if it came to a matter of life and health.

The problem will be in determining what constitutes such a situation. Domestic water famine would presumably call for drastic action, but it is anybody's guess at this point whether power loss or industrial water scarcity would call for a high level decision on the Mississippi's low water problem.

Part of St. Louis' problem is described as failure to support proposed lower Missouri Basin dams on such tributaries as the Osage, and Gasconade Rivers, both in the State of Missouri.

• Trouble for Industry

In St. Louis, Col. George E. White, District Engineer, counted a private power company's reservoir in his last-resort plans.

A power dam on the Osage is intended to be integrated into plans for upholding the lowering river level. This is a dam of Union Electric Co., of Missouri, the utility company threatened to be hit seriously by the developing situation.

Union Electric is the most vitally concerned industry in St. Louis. Its five coal-burning steam plants in the area have a combined generating capacity of 1,270,000 kw. They need 1.2 billion gallons of cooling and make-up water daily.

A spokesman for Union Electric described for ENR the extent to which company operations might be affected and the means by which Union Electric hopes to keep the worst from happening. He said the company had never faced such a shortage. (They look for the Mississippi to drop down to −8.0 or −8.4.)

"At −6.0," he said, "we lose one of our old power plants, the Ashley plant . . . for generation of power." At −7.0 the losses would reach 10 to 15%; the company has reserves that can make up this difference. But at −8.0 fully a third of generating capacity would be lost and it would be necessary to "shed industrial load." This would mean industries in the St. Louis area would shut down at least in part for want of power.

Even before things reached this point, industries would be suffering from direct loss of water. The intake for the big Anheuser-Busch brewery will be out of water at −5.5.

Heavy rain in the right places would be the best help. Beyond that it will be up to the river controllers to do what they can within their fairly rigid legal limitations.

Super-City to Beat Suburb Problems

Plan for Nashville called more inclusive than metropolitan Toronto's in combining city-county public works and utilities

The joint City-County Planning Commission set Sept. 1, 1958, as the target date for attaining one government for Nashville and Davidson County.

The recommendations, contained in a 58-page report released last week, would make the governmental structure of this community unique in U. S. political development.

A single government is needed, the commission said, because the community "has outgrown the city government geographically . . . and the county government in its ability to meet the needs of a modern, expanding urban community."

"We feel that positive action on this plan of metropolitan government is mandatory for the continued growth and sound development of this total area," the commission said.

• Unique in U. S.

Charles W. Hawkins, Executive Director of the Planning Commission, said, "There is no other community we know of with a government like the one recommended here. The nearest thing to it is a plan of metropolitan government adopted by Toronto, Canada, and that one is a compromise.

"We feel that in Nashville and Davidson County we do not need to compromise."

Under the plan, taxes would be based on the services provided. There would be two service districts, one comprising the more heavily populated area and the other the rural areas, and taxes would be different in the two.

At the start, the commissioners indicated, the urban service district would correspond to what is now the city of Nashville—none of the outside area could be added to this without a vote of the people affected and taxes could not be levied for urban services until provided.

Legislation planned for introduction in the next General Assembly would be statewide in nature but would apply only to counties with 100,000 or more population. Thus, the four major cities would be the only ones affected.

The proposed name for the area would be Nashville-Davidson Metropolitan Area.

The commissioners said many economies would be affected by the one-government plan.

T. P. Kennedy Jr., Chairman of the County Planning Commission, said the report has the endorsement of Mayor Ben West and County Judge Beverly Briley.

The plan was unanimously approved by the joint commission.

If the recommendations are adopted, both the city and county governments —as they now are known—would be wiped out.

• Urban Service in Suburbs

In their place would be the single government, capable of supplying urban-type services to the rapidly expanding surburban sections of the community, and general services to those sections of the county still rural in nature.

Under the plan, a single chief executive of the new government—with powers similar to those of a mayor—would head the executive branch.

A new "Metropolitan Council"—some members elected by districts and some from the whole area at large—would replace both City Council and County Court, although the latter would retain certain constitutionally required duties.

The courts now in existence would be affected little if any, the report said.

City and county employees would receive maximum protection in their rights and privileges under the one government plan, the report said.

Setting up the new government, the commissioners said, will require general legislation by the Tennessee General Assembly and a referendum approval by the people.

• Timetable for Change

They proposed that the necessary enabling legislation be presented to the Assembly when it convenes in January. In successive steps, a charter commission would be named and after a year of study, would submit its report to the people for approval in a referendum.

Once approved, an election would be set for August 1958, and the new government would go into effect Sept. 1, 1958. This would mean the changeover would coincide with the end of Judge Briley's current term in office. A speech by Briley before a Nashville civic club last year sparked the talk of one government for this community.

Under the plan the cities of Belle Meade, Berry Hill and Oak Hill would be brought into the single government plan only if a majority of the people living within their boundaries approved.

To vote themselves out of the one-government, however, these communities would also be voting themselves out of such essential urban-type services as sewers, fire and police protection, and garbage collection, the report stated.

In reaching its recommendations, the commission said it probed the governmental structures of 172 metropolitan areas and rejected nine alternative governmental plans.

The commission concluded:

"The people of Nashville and Davidson County have an excellent and rare opportunity to do what the majority of metropolitan areas now find almost impossible to attain—namely, to provide a unified framework of government within which the total metropolitan community can plan, grow and meet its needs together."

Most communities, the report said, have already gone beyond the point of unifying. Such cities as New York, Chicago, Pittsburgh, St. Louis, and Philadelphia, for example, have "over 500 separate units of government within the metropolitan area."

"Of the 172 metropolitan areas, 11 have more than 250 units of local government, and 85 metropolitan areas have more than 50 separate local governments." Nashville, by contrast, has only nine such local governmental units, the report stated.

Since general—rather than private—legislation is required to put the plan into effect, Hawkins said, "We must sell this plan across the state."

Iowa Will Set Road Record With $100-Million Program

The Iowa Highway Commission said this week that it will award between $100 and $115 million worth of roadbuilding contracts next year. According to Robert Beck, commission chairman, the total would be by far the greatest annual program in the state's history.

The 1957 program will include $70.8 million for interstate roads and $45.5 million for primary road construction. The primary road expenditure may be reduced, depending upon whether the state legislature re-enacts a law that boosted the gasoline tax from 4 to 6 cents a gallon. If the law should not pass, the lettings would drop to $36.7 million.

First interstate work is to begin on Highway 69, west and north of Des Moines; Highway 6 at various points, and Highway 75 north of Council Bluffs.

FOUNDATION for 510-ft-high Swift Dam is ready for big 15-million cu yd earth and rockfill operation.

Highest Earthfill Dam to Get Under Way Soon

Work on Swift Dam—to be 510 ft high and the world's highest earthfill structure—is slated to begin early next month. An $18.3-million contract covering the dam and excavation for one of two powerhouses has been awarded to a joint venture of J. A. Jones Construction Co., Seattle, and Charles H. Tompkins Co., Washington, D. C.

Located on the Lewis River in southwest Washington, just upstream from Merwin and Yale Dams, Swift project is being undertaken by Pacific Power & Light Co. and Cowlitz County (Wash.) Public Utility District. The PUD's contribution to the $56-million, 256,000-kw project will be $15 million for a second powerhouse to be built downstream from the dam.

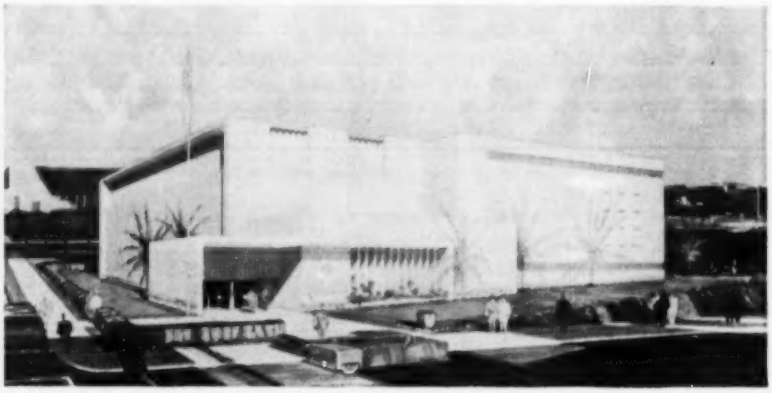
• **Massive structure**—Swift Dam will be a rolled structure containing 15 million cu yd of rock and earth stretching 2,100 ft across a gorge high in the Cascade Mountains, about 45 mi north of Portland, Ore. Some 55,000 cu yd of concrete and 3,200 tons of reinforcing, structural and plate steel will be incorporated in a spillway and powerhouse intake structure. The present work and construction of the powerhouse are scheduled for mid-1958 completion.

The first phase of the project, involving river diversion and some excavation, is being performed by Guy F. Atkinson Co., San Francisco, under a $1.8-million contract. The diversion, completed on Oct. 8, required driving a 2,900-ft tunnel 32 ft in dia.

Powerhouse No. 1, at the foot of the dam, will have three generators and a total capability of 189,000 kw. Its tailwater will run 3½ mi downstream to Plant No. 2 where two generators will have 67,500 kw of capacity. Swift Dam will be 2,100 ft thick at its base.

Bechtel Corp., Vernon, Calif., designed the project. Yale and Merwin were also constructed by Pacific Power & Light Co.

The three PP&L projects will develop a 1,000-ft fall over 338 miles in the Lewis River.



It Doesn't Look Like a Boilerhouse

Equipment for heating and air conditioning nine buildings in the Los Angeles Civic Center will be housed in a $3.5-million structure designed to harmonize with surrounding architecture. Contract for its construction has been awarded to Haas-Haynie-Frandsen, Inc., Beverly Hills, Calif.

From this central plant, insulated seamless steel pipes for conveying steam, condensate, chilled water and return water will extend out in underground concrete tunnels to the Civic Center buildings. The tunnels, which will cost about $1 million more, also will serve as pedestrian passageways.

The new building will have cast-in-place reinforced concrete walls, struc-

tural steel roof beams, metal roof deck.

Five boilers with a nominal output of 16,000 lb of 275-psi steam per hour will be installed initially. Cooling will be accomplished with three steam-turbine-driven centrifugal compressors, with a capacity of 1,200 tons apiece.

The plant was designed by M. A. Nishian, consulting engineer, Long Beach, Calif.

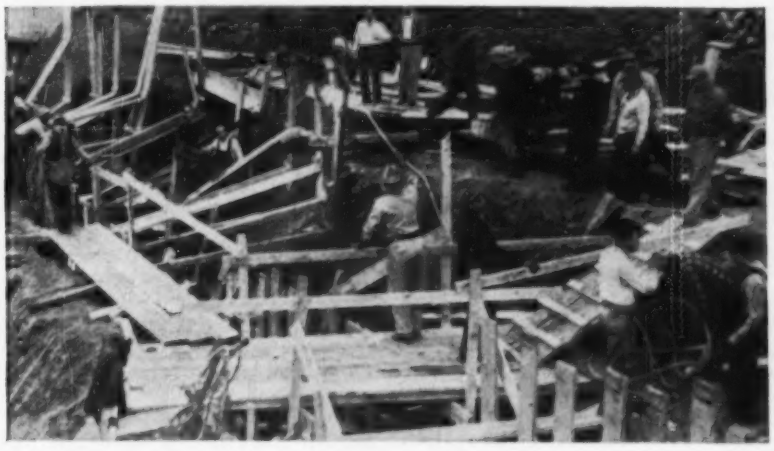
Colored Aluminum Roofs a Museum

Pittsburgh's 60-year-old Carnegie Institute is getting a new roof that requires 89 tons of aluminum sheet and extrusions. Covering 196,000 sq ft, the new roof will weigh less than a third as much as the old one of Spanish tile and copper.

To match the green patina of copper and bronze ornaments remaining on the building, the aluminum will be colored by a chemical-immersion process.

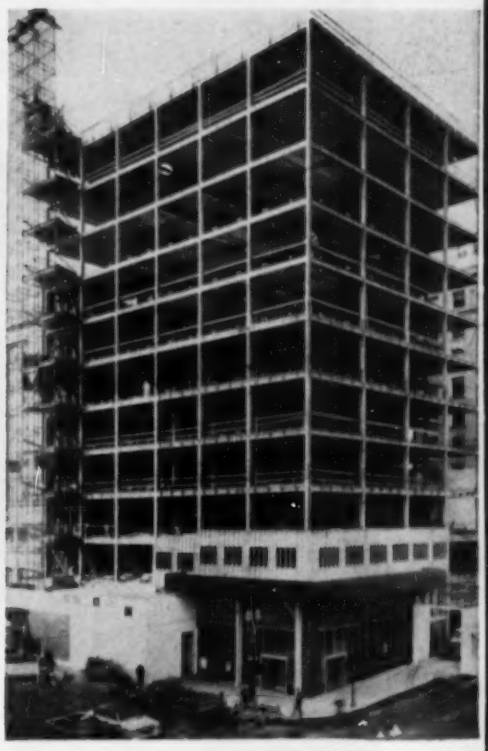
Overly Manufacturing Co., Greensburg, Pa., fabricated the aluminum with expandable joints that require no putty or sealing compound. First, extruded battens are clipped to the insulated, felt-covered deck. Then the aluminum sheets, 0.040 in. thick, are hooked over the edges of the battens. Finally, caps are placed over the joints.

Overly also is installing the roof, under supervision of Charles M. and Edward Stotz, Pittsburgh architect and engineer in charge of the project.



Trench Sheeting Fails: Cave-in Kills Seven

Seven workmen lost their lives in a 30-ft-deep trench excavation last week at Varennes, Que., 20 mi east of Montreal. Timber sheeting for the sewer trench excavation collapsed, and tons of damp clay covered the men as the sides crumbled. Area of slide can be seen on the far bank of the trench. The slide area is shown shored here for protection of rescue workers who toiled all night after the tragedy but succeeded only in recovering the bodies of the men caught in the bottom of the trench when their protection collapsed.



Eleven Stories Now—It Began As Eight

Razing not-so-old buildings to make way for bigger ones is old hat in this country, but some sort of record must have been set in construction of the $2½-million Pacific First Federal and Loan Building in Portland, Ore.

Originally planned as an 8-story reinforced concrete structure, the building had been erected up to the fifth floor when the owners decided to enlarge it.

Demolishing everything above basement-floor level except a portion of the first floor, Hoffman Construction Co., the general contractor, of Portland, started again—this time with steelframe construction.

What finally emerged, as the photo shows, was an 11-story structure. Nearly finished now, the building is scheduled for occupancy in January 1957.

Even with three more floors than had been planned most of the old footings were still usable because of the lighter loading in the redesigned building. About 70 tons of dead load per floor were eliminated, for example—without loss of the 4-hr fire rating—by the use of steel framing and perlite (lightweight volcanic rock of the obsidian type) fireproofing plaster.

Architects on the job were Boles, Maguire & Church; structural engineers, Cooper & Rose; both firms of Portland, Ore.

Four-month-old paving fails, but . . .

Tests May End Skyway Trouble

Last week, a paving crew of the New Jersey State Highway Department moved once more onto the Pulaski Skyway, a 3½-mi elevated artery that spans two major rivers at high level and constitutes the state's primary free access link between New York City and the south.

Trouble is an old story with the Skyway. Last June the department put down five test sections of resurfacing, but heavy, highspeed traffic soon whipped away the pavers' work. Now the men are back with wisdom gained from the test sections, and they think they've got the problem licked.

• **The problem**—The four-lane trestle and continuous truss structure was built in 1932 under a design that was adequate to carry far more than the volume and weight of traffic of its day.

But the original 8 in. of concrete in its decking system was worn so smooth in its 25 years of service that skidding accidents became a probability rather than a possibility. And as traffic volume increased—currently 66,000 units a day—the death toll rose accordingly.

In addition, with no ground insulation, mass temperatures are extreme in winter and summer.

• **Tests show results**—In June, the department started to lay down test patterns of various surface treatments, believing that any or all of them that proved successful could be used later in an over-all treatment. The 500-ft test sections—the first four were tar applications—were placed at night, with abrasive aggregate ranging from grits, through screenings and up to ½-in. stone. In one application, slag chips were used.

Unfortunately during application of these surfaces, abnormally hot days were encountered, and with necessary daily opening to traffic, together with high mass temperatures of the slab itself, the surface treatment on all sections had a tendency to creep and windrow, leaving a surface inequality that increased driving hazards.

The fifth test section was a synthetic asphalt with sharp sand aggregate applied on tack coat in a layer ½ in. thick (compacted). This one gave very satisfactory service from September, [illegible] time when it was applied, and it was decided that this was the most likely answer to all problems.

• **The solution**—The present paving operation, scheduled to be completed in about three weeks, follows the method of the fifth test section. The operation is being carried out during daylight hours, with one lane being closed at a time.

The asphalt spreader precedes the crew with the tack coat, a truck-served paver follows behind this placing the bituminous mix and two tanden rollers then finish the job. The result is a smooth durable wearing surface that shows promise of taking the beating of traffic and the unusual extremes of temperature that have spoiled all other efforts.

A 15-Year Program

$50-million water plan is proposed for Milwaukee

An expansion of the Milwaukee, Wis., waterworks costing nearly $50 million has been recommended to the city's Common Council by the consulting firm of Black & Veatch of Kansas City.

The program would be carried out from 1957 through 1972 and would require a 30-year revenue bond issue of $53.3 million. That figure includes $4 million for construction projects now under way.

The major new work proposed is a complete new South Side water system, paralleling the North Side System now in use. It would include an intake tunnel 9 ft in dia extending a mile into Lake Michigan, a raw water pumping station, a 72-in. transmission main and a 100-mgd filtration plant.

The South Side system, estimated to cost $18.5 million, was given top priority in the 1957-1961 period of the proposed timetable for construction. The consultants recommended that a total of $35.3 million be spent for construction during that period.

The huge proposed program results from a study brought on by distribution system pressures during the last few summers.

Two major booster stations, a major high-service pumping station on the city's South Side and a new, all-electric pumping station to replace a present one also are recommended in the report.

Water rate increases will be needed to finance the program, the engineers stated. Milwaukee already has been given approval for a 25% emergency rate increase on an interim basis by the state Public Service Commission.

NSPE Fall Meeting

Society plans discussion of an "ideal" registration law

Carefully worded language on proposed legal requirements for corporate practice by engineering last week rekindled hopes of the National Society of Professional Engineers that this and other sections of an ideal registration law would be endorsed by all technical societies and adopted by the states in the next ten to 15 years or so.

EJC and all national engineering societies received copies of the draft a month or so ago, along with an invitation to submit comments and to send an official representative to an open discussion Feb. 14 in Charleston, S. C., during the spring meeting of the NSPE board.

At its fall meeting in White Sulphur Springs, W. Va., NSPE's 100-man board of directors took no action on the preliminary draft of an ideal registration law worked up by the society's registration committee. NSPE policy so far has left corporate practice—and other controversial issues of engineer registration law—to its state societies.

The national body may continue the same hands-off policy on the new recommendations. Proposals in the ideal draft are destined to serve as guides to all the states in amending their present registration laws. NSPE's objective, of course, is to encourage uniformity both in professional engineering requirements of the states and in the policies and procedures of state registration boards. Present state laws conform generally, but in varying degrees, to NSPE's model law of 1946, which still stands as the society's basic pattern for legislation in this field.

Only after all other engineering groups and individuals have had a chance to comment will NSPE's registration committee get down to rewriting its recommendations into final form. The present draft makes a clear distinction between engineering practice for their own business purposes by companies engaged in production, manufacture, transportation, etc., as compared with consulting firms that offer engineering services. For companies of the first type, it would be sufficient that professionals perform the engineering work and sign the plans and specifications for which they are responsible.

In a consulting firm, however, the proposed guide language would require that the chief executive officer and a majority both of the other executive officers and of the directors, be registered engineers.

Among other important actions at last week's NSPE meeting, these stand out:

• The board opposed federal aid for education below the college post-graduate level.

• Learned that two labor cases involving rights of professional employees under the Taft-Hartley Act may be decided within a month by the U. S. District Court for the District of Columbia. NSPE has filed friend-of-the-court briefs in both cases.

Bonds to the Polls

Record $2.7 billion to be voted on next Tuesday

A record total of nearly $2.7 billion in state and local government bond issues will be submitted to the voters Nov. 6.

The total eclipses the previous high, set in 1949, when the bond issue total reached $1.6 billion.

This year's total is more than $1 billion bigger than the amount submitted in the last general election, when voters approved bond issues totaling $556 million and turned down another $976 million.

California leads the list in size. There, the ballot will decide the fate of a $500-million veterans home and farm bond issue, to continue a program in effect for several years. Under new legislation, veterans are able to get loans up to $15,000 for homes and $40,000 for farms.

The state also has a $200-million bond issue for state buildings, including colleges, mental institutions and penal facilities and a $100-million bond issue to continue the state program of school construction loans to local school districts.

New York State has the second biggest dollar volume with $500 million slated for highways and $100 million for middle-income, limited dividend housing. A $750-million highway bond issue was defeated in the last general election, but the smaller issue is given a good chance this time.

Among the cities, Baltimore heads the list with a total of $94.8 million proposed. Among the items the voters will ballot on: $45 million for a water supply project that includes a pipeline to the Susquehanna River and enlarging and improving the water distribution system.

The city also votes on $29.5 million for schools; $5 million for off-street parking facilities; $6 million for a civic center and sports arena; $5 million for sewers.

While Louisiana has no major bond issues up for vote, the election is noteworthy because of 48 proposed constitutional amendments, several of which could lead to major port construction programs.

Building Code News

Changes for Los Angeles, Denver; model for Midwest

Changes in building and zoning codes crept into the spotlight last week in three locals—the Midwest, Los Angeles and Denver.

The Midwest Conference of Building Officials, with headquarters in Indianapolis, announced that a new model building code designed to meet requirements and climatic conditions of the Midwest states will be issued early in 1957.

A draft of the new code, as submitted by the Building Code Committee, was approved by the general membership at a meeting that was held in Chicago.

John V. Gallagher, executive director, said it would be available for adoption around Jan. 1.

Meanwhile, two other codes came under scrutiny:

• **In Los Angeles**—The Los Angeles County Board of Supervisors approved an amendment in the county zoning ordinance lifting the 13-story height limitation on construction of buildings in the unincorporated areas of Los Angeles County.

The amendment replaces the fixed height limit with a floor area limit of 13 times the area of the building site. (Floor area does not include parking floor space, cellars or penthouses.) A similar change will be presented to Los Angeles city voters on the Nov. 6 ballot.

• **In Denver**—Denver's zoning code, adopted in 1955, was killed by a decision of District Judge William A. Black.

He ruled that the City Council improperly adopted the zoning ordinance by failing to inform Denver taxpayers sufficiently in notices prior to a public hearing what the new law would do to their property.

The decision returned city planning to standards provided in a 1924 code. Judge Black's ruling strengthened opposition to another ordinance, incorporating all elements of the 1955 code, pending before the City Council. The new ordinance was drawn to overcome the 1955 illegal action.

Denver Buick, Inc., Rainbo Bread Co., and Weaver-Beatty Motor Co. brought the court suit challenging the 1955 code. They contended that the measure deprived taxpayers of their property without compensation and that the code discriminated in favor of downtown businesses against those that are located in peripheral and outlying areas.

At The Dalles Dam: Closure Accomplished

A team of bulldozers and trucks dumped boulders to divert the Columbia River last month and ended another chapter in the development of the $260-million, multipurpose The Dalles Dam.

Official recognition of the Dam's closure, about a month ahead of schedule, took place as Portland District personnel of the Corps of Engineers and members of the Atkinson-Ostrander Construction Co. stepped across the closed gap from Washington to the Oregon side. Now diverted from its natural channel, the river flows through eight partially completed units of the dam's powerhouse.

For more than a month the construction company had pushed quarry-run boulders into the river at the rate of 9,000 cu yd per day to block the natural course. Trucks end-dumped at the rate of one a minute in the final stages while bulldozers shoved the rock into the narrowing gap.

Contractor's effort now will be aimed at widening and elevating the dumped fill and sealing its upstream face. Corps of Engineers' plans call for raising the filled section to an elevation of about 85 ft. This will be 5 ft above normal river flow. The final blanket on the upstream face will be placed by the Corps' bucket dredge "Cascade" with an LST transporting 12-yd skips for use in the underwater work.

A closed television circuit will be used for inspection of the completed work, the river bed and nearby steep rock banks. The Corps has used television on four previous occasions to inspect underwater phases of the project. To avoid interfering with construction, inspection will be done on Sundays.

Navigation on the section of river in the east ramparts of the Columbia Gorge will be halted Jan. 1 to permit dismantling of the nine piers of the upper Celilo Canal which could prove to be future navigation hazards along the Oregon shore. The huge new navigation locks, on the north Washington bank, will be placed in service sometime after Mar. 1, 1957.

Top elevation of the closure dam, which will permit construction of the powerhouse non-overflow section, reaching to the Washington shore abutment,

THE DALLES DAM—zig-zagging from far shore, with Mt. Hood in the background—was

CLOSURE OF RIVER is completed as bulldozers shove quarry-run boulders into the narrowing gap. More than 300,000 cu yd of material was used to block the Columbia.

DIVERSION COMPLETED, waters of the Columbia pour through the partially con-

d River Diverted

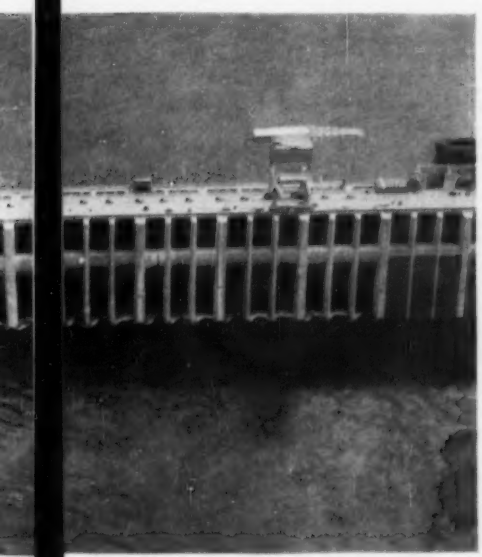
closed as the channel was blocked (arrow).

will be 185 ft above sea level; it will be 275 ft high.

Width of the rock at the base will be about 1,000 ft while the crest length of the earth and rock closure dam will be 2,000 ft. When complete, the structure will contain about 3.5 million cu yd of material, more than 10 times the amount in place at the time of closure. Powerhouse gates are scheduled to be closed in mid-March to start formation of the reservoir.

Now almost complete, the Dalles Dam project may be the last wholly government-built major main stem development on the Columbia. Authorized John Day Dam involves legislation proposals for partnership construction 25 mi upstream from The Dalles.

Priest Rapids Dam, the other remaining major hydroelectric generating plant scheduled for construction on the main stem already has received the green light for local public utility construction (ENR March 22, p. 21).



structed powerhouse units. Filling will begin during mid-March when gates close.

A Power and Water Headache

Dwindling power reserve tempts Tennessee leaders to become selective in luring industrial users; water shortage forecast

Tennessee Valley leaders have called for a study to decide whether their region should continue to solicit industry that requires large blocks of power but employs few workers.

The Chairman of the Tennessee Industrial and Agricultural Development Commission, W. D. Baird, says the "gobbling up of big chunks of power by relatively small employers will be a problem until again we have a plentiful supply."

He believes the best answer would be to obtain passage of the self-financing plan to permit TVA again to build "a comfortable power supply reserve."

"Until then," says Baird, "our goal should be a fair relationship between the number of kilowatts demanded and number of good jobs created."

The study he suggests would test desirability of new industry on a broader basis than direct employment. It would include the industry's use of local raw materials and the indirect creation of new jobs rising from that use. Another test he recommends would include the potential ability of the new plant to attract appropriate satellite industries.

Baird cites as good and bad examples the thousands of jobs created in timber harvesting and growing created by the valley's new paper and pulp mills, and the clustering of new chemical plants around the original basic producers at Calvert City, Ky.

• **Worried about water, too**—On another front, the Chairman of the Tennessee Water Policy Commission has warned of a critical water shortage in 20 years unless appropriate water resources planning is undertaken and carried through. Chairman Jim McCord, also State Conservation Commissioner, will offer legislation to this effect, based on a two-year study by the water group.

The commission has recommended creation of a Water Resources Division and a complementary Water Resources Advisory Board in the State Conservation Department. The two new groups would offer specific proposals to the 1959 state legislature concerning overall planning and possible revision of state laws on water rights.

Most of the current problem springs from rapidly increasing use of water for irrigation. In 1949, 1,000 acres were being irrigated in Tennessee. By 1955 the figure was 39,000 acres.

Norfolk Waterfront Plan Has $17-Million Price Tag

The Norfolk, Va., Port Authority has revealed details of a $17.4-million waterfront development plan that would be the first step in modernization and revitalization of the pier area of the Norfolk inner harbor.

The area to be covered runs from the now-abandoned Portsmouth ferry terminal to the foot of West Main St., a distance of about six blocks.

The proposal is geared to blend with redevelopment of downtown Norfolk, including a proposed new loop freeway. It visualizes pier space for four ocean-going ships; a 500,000 sq ft warehouse and a multi-story office building that would be used by firms identified with the maritime business; a parking facility atop the warehouse and a large covered dock and wharf.

Plans were prepared by the architectural and engineering firm of Hayes, Seay, Mattern & Mattern.

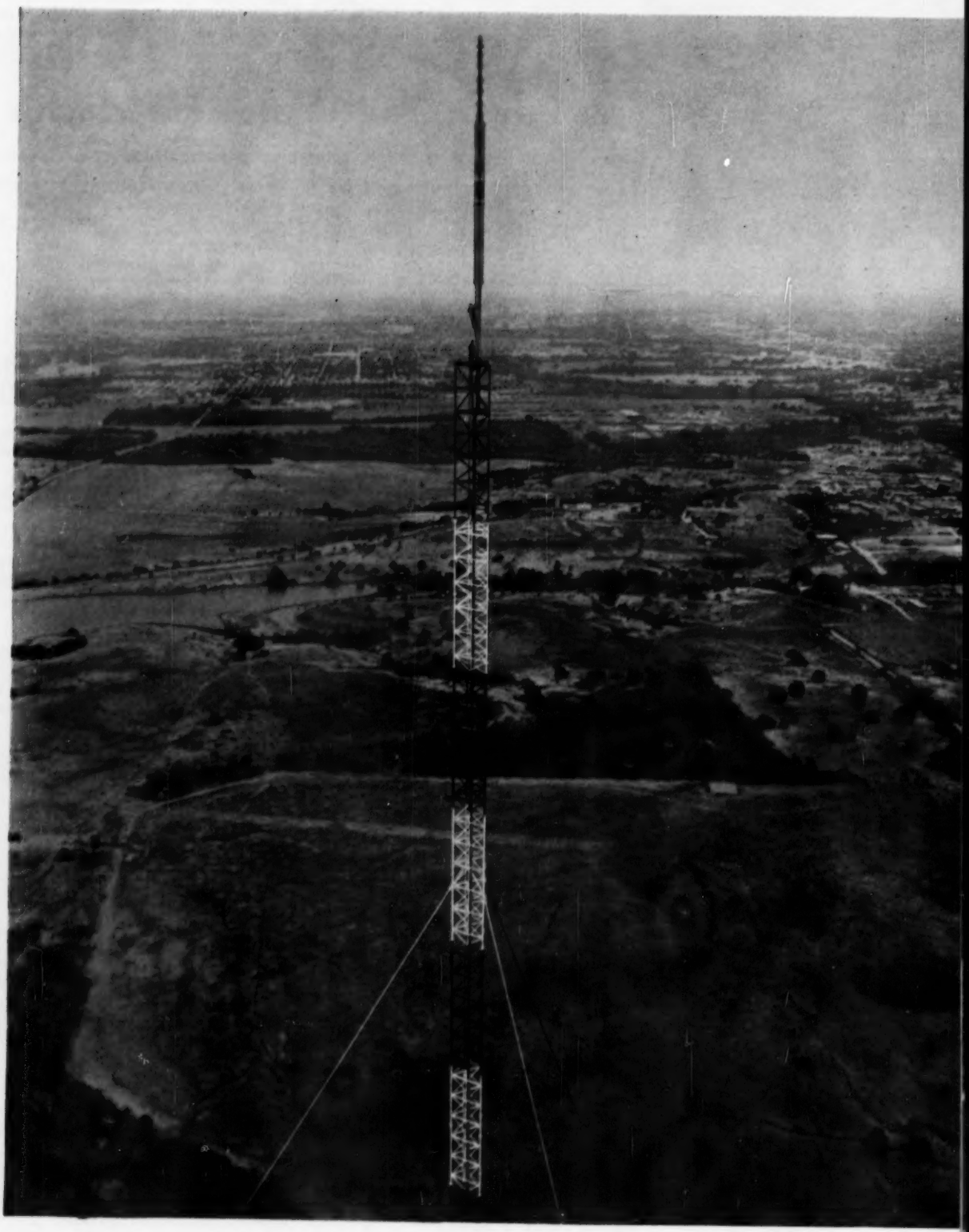
State Loan to Speed Work On Niagara Power Project

A $350,000 loan to the New York State Power Authority was approved last week by Gov. Averill Harriman to "speed Niagara power development by six months."

A license to build and operate a power plant from the Federal Power Commission had previously been requested by the State Power Authority (ENR Oct. 15, p. 17).

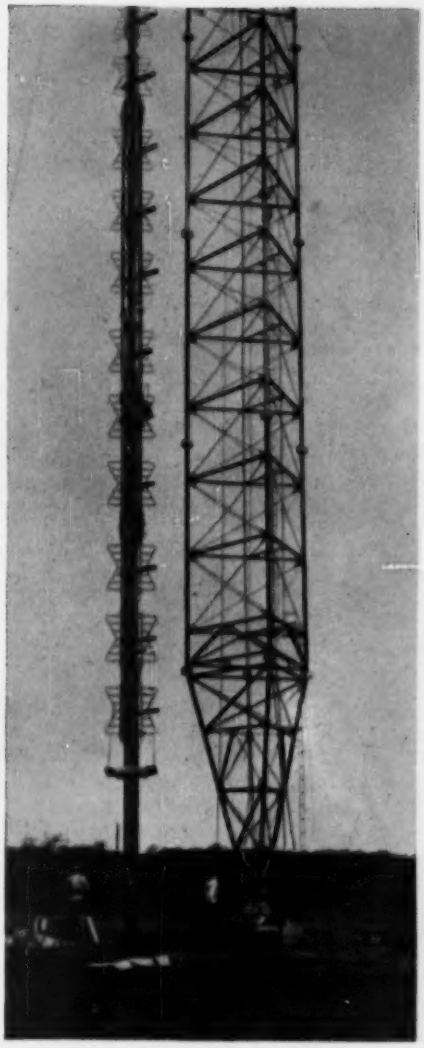
A reservation in a 1950 water-use treaty with Canada specifies that Congress determine how Niagara power be developed. The New York State Power Authority challenges the constitutionality of that provision and expects an eventual court fight.

Tower weight reduced 20% with



USS MAN-TEN High Strength Steel

1078 ft. high, this television tower of Station KFJZ at Fort Worth, Texas, is designed to carry a 74-ft. VHF antenna weighing 10,000 lbs. and to resist winds up to 110 miles per hour.



TO PROVIDE THE STRENGTH needed and at the same time to keep tower weight low, round bars of USS MAN-TEN High Strength Steel were used in the tower legs.

This construction has two principal advantages. First, the round leg sections have only two-thirds the wind resistance of flat or angular sections. Second, because MAN-TEN Steel is one and a half times stronger than structural carbon steel, it can be used in smaller diameters for a given strength level. Thus, by using MAN-TEN Steel rounds, the tower could be designed lighter and still meet the wind resistance requirements.

Actually the USS MAN-TEN Steel legs are about 17 to 20% lighter—and in the same amount, smaller in diameter—than A-7 carbon steel legs would be. The resultant decrease in wind load made it possible also to decrease the size and weight of struts and bracing, thus further reducing the weight of the tower proper and making the use of smaller piers and lighter guys feasible.

So even though MAN-TEN Steel was used in only the tower legs, it resulted in a reduction in over-all tower weight of about 20%—from about 150 tons to 120 tons.

In all, 65 tons of USS MAN-TEN Steel are used in the legs. These range in diameter from 5 in. at the tower base to 3 in. at the top and were fabricated by Parkersburg Rig and Reel Company. The mild steel splice plates and intermediate gusset plates for bracing members were attached by jig welding. Bracing and struts were bolted to the legs in the field where the leg sections were assembled and erected.

This application is typical in that it illustrates how USS MAN-TEN and other USS High Strength Steels—USS TRI-TEN "E" and USS COR-TEN—are being used by structural engineers and bridge designers to build safer, more dependable and more durable structures—often at lower cost.

Our engineers will be glad to discuss the many advantages of High Strength Steel construction and give you the benefit of their long experience in applying these superior steels to your designs.

Tower was designed and fabricated by The Parkersburg Rig and Reel Company of Fort Worth, Texas and was erected by Beasley Construction Company, Muskogee, Oklahoma.

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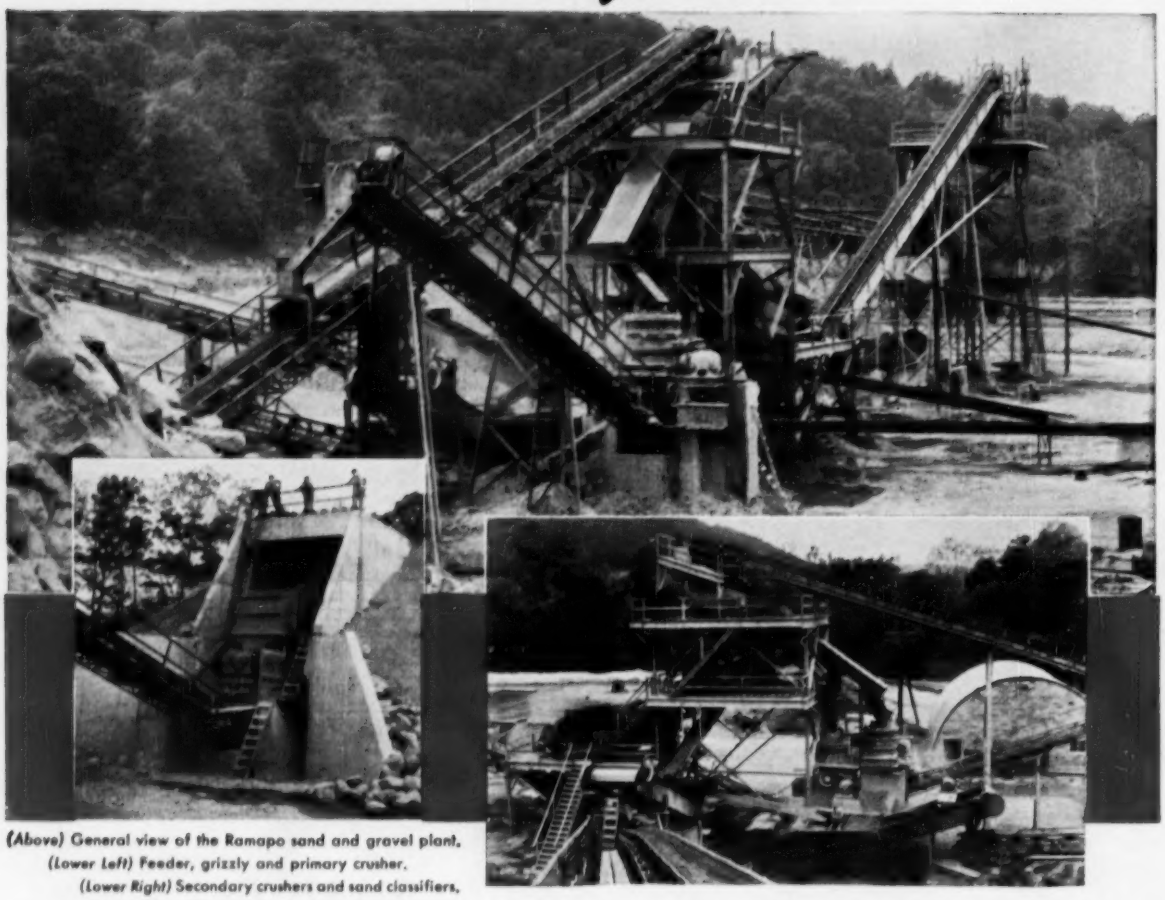

(Above) General view of the Ramapo sand and gravel plant.
(Lower Left) Feeder, grizzly and primary crusher.
(Lower Right) Secondary crushers and sand classifiers.

Near the New York Thruway, and close to many other heavy construction jobs, this complete Telsmith plant meets all their aggregate requirements. Built by Ramapo Sand & Gravel Co., Ramapo, N. Y. and designed by Telsmith engineers, it has Telsmith equipment throughout. It makes three sizes of gravel, and concrete and mason sand, all washed. Be sure that yours is a profitable Telsmith plant. Send for Bulletin 266.

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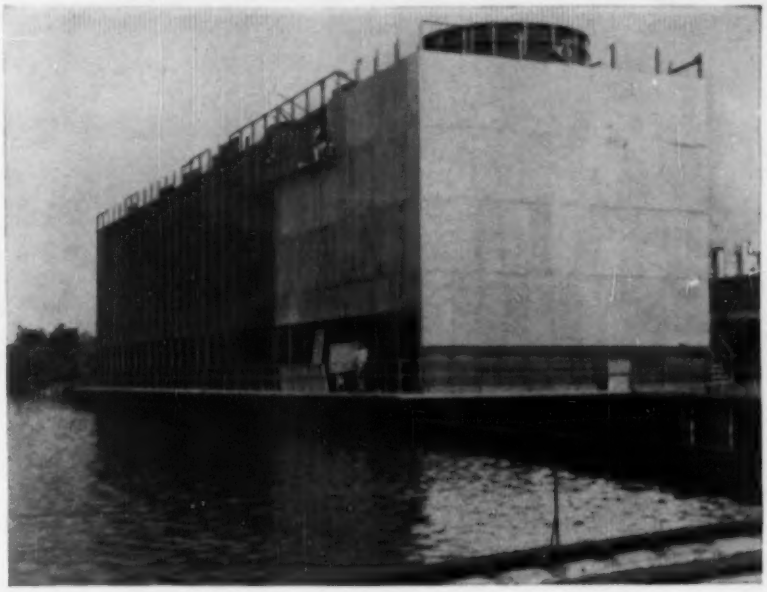
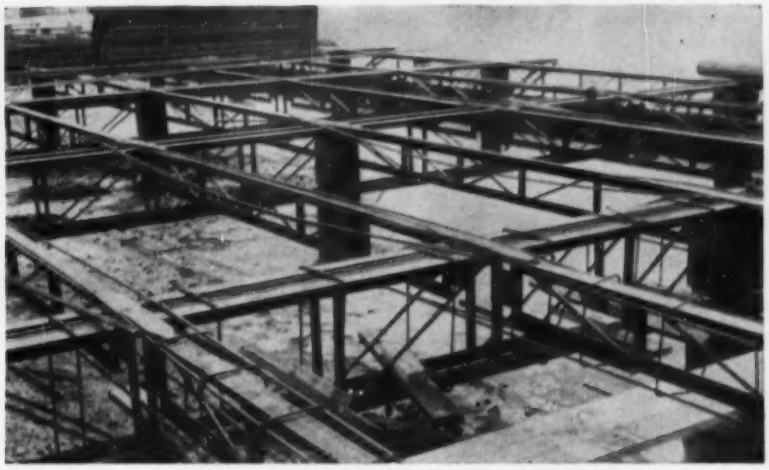
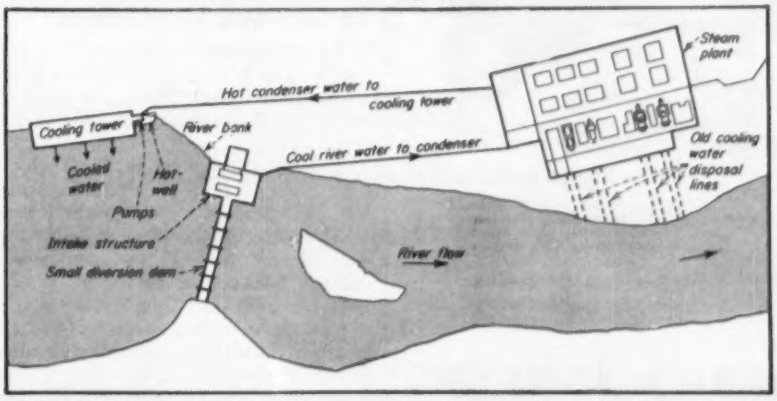


Cooling tower for a steam generating plant gets final touches after prestressed concrete beams were used—a case where . . .

Steel Shortage Saves Money



LIGHTWEIGHT JOISTS tied with reinforcing steel stand ready for forms that will turn them into reinforced concrete trusses for tower platform.



UPSTREAM LOCATION of cooling tower site is shown in plan of distribution of water from plant to cooling tower and back into intake for condenser.

Lightweight steel joists, used first as formwork and later as reinforcement in a concrete foundation for a cooling tower, made a virtue out of the steel shortage.

A 36 x 180-ft foundation slab built 4 ft over the Grand River in Lansing, Mich., was originally designed with steel girders and steel floorpans on which a 4-in. concrete slab was to be placed, all supported by piles.

This unlikely arrangement and location for a cooling tower was made necessary by the river flow being insufficient to supply condenser cooling water to an adjacent steam plant scheduled for enlargement.

After bids were taken on the original design, it became apparent that steel delivery schedules would cause considerable delay in construction, and the contractor, Walter Toebe of Lansing, suggested substitution of an all-concrete foundation slab.

After the suggestion was approved, the problem was how to support the concrete forms and later remove them in the confined 4-ft space above the water, which was surrounded by a sheet-pile enclosure.

The contractor welded fabricated steel joists to the bearing piles. These joists were designed to carry only the weight of the forms and the concrete girder stems, and to act as reinforcing for the finished structure. Additional reinforcing was placed for the dead-load weight of the slab and the live load. The forms were supported entirely by the joists.

Stems of the girders were poured first and allowed to set, then the concrete

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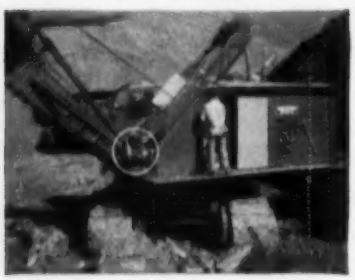
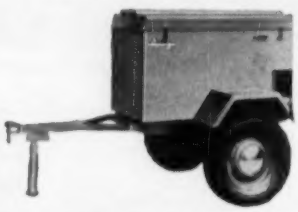
Put these mobile, high-capacity units to work on your next lighting job.

Onan 10CW mounted on a portable, skid-mounted floodlight tower. This unit is being used for night operations on a St. Lawrence Seaway project.



Onan 3KW Series 3DSP Diesel electric plant mounted on shovel—lights cab and work area.



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slab was poured to the finished elevation. The concrete was cured by recirculating warm water, from the power plant, within the sheetpile enclosure. This raised the temperature of the entire area beneath the structure and permitted curing without the use of any additional heating.

Work was started in January of this year, a time when the river was completely frozen over. This greatly aided the work of driving the sheetpiling and bearing piles—and provided a waist-high platform for the placing of the fabricated joists and hanging of the forms. The foundation was completed by April 15.

The new tower will cool 71 cfs from 100 F to 84 F. Minimum river flow is only 35 cfs. Warm water from the condensers flows to a hot well at the tower, then is pumped to the top of the tower where it falls through a series of redwood baffles to the concrete pan. This slants slightly toward the river so that the cooled water, finally some 15 deg cooler, finds its way into it.

The process starts all over again when the water, again part of the river, flows to a diversion dam where it is picked up by an intake structure that leads back to the condenser.

Six 5-bladed, 22-ft-dia fans, driven by 75-hp motors, provide necessary upflow of air for the cooling process.

The foundation design alteration saved the Lansing Board of Water and Electric Light Commissioners some $20,000. Original estimate of the installation was $305,000.

The foundation, comprising 39 30-ft 12BP53 piles and the concrete cooling tower floor, cost about $75,000. The tower itself cost $125,000, with the balance going for piping and valves, pumps, and electrical equipment.

The tower was built and erected by Foster-Wheeler Manufacturing Co. W. J. Baumgras of the contractor's staff, designed the revised foundation.

Brush "Sleeve" Is Used To Coat Mile-Long Cables

To coat six 6,240-ft-long cables strung 200 to 300 ft over Puget Sound Narrows near Tacoma (Wash.), a painting contractor developed a tank-fed "sleeve type" brush.

The cables, belonging to Tacoma City Light, needed an asphalt coating but their positioning and height promised to make the job slow and difficult. To lick the problem the contractor, Andrew Nesheim of Edmonds, Wash. grouped individual brushes within a circular sleeve in such a way as to make positive contact with the entire circumference of the cables to be coated. Paint is poured into a storage tank which automatically feeds the brushes as they are drawn along the cable.

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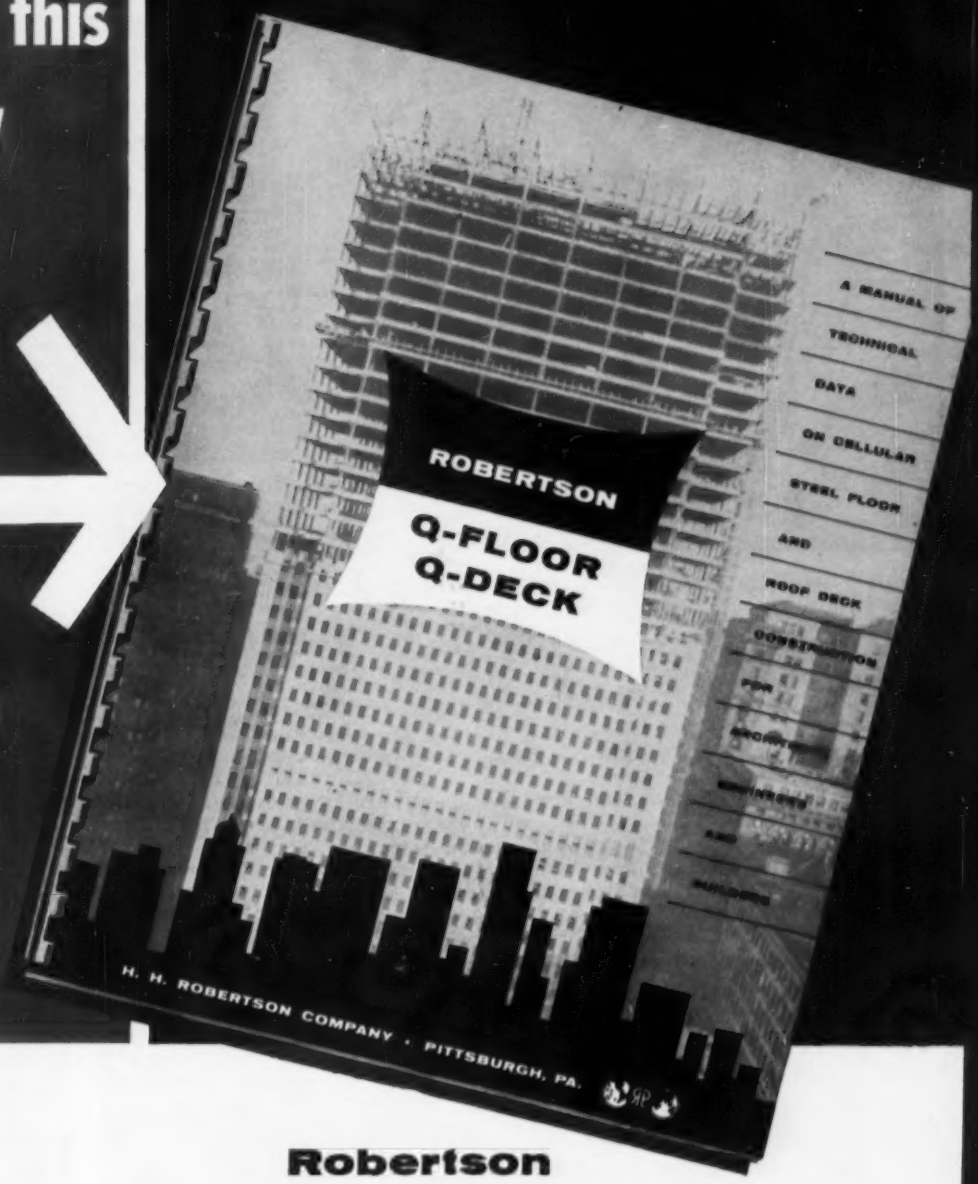
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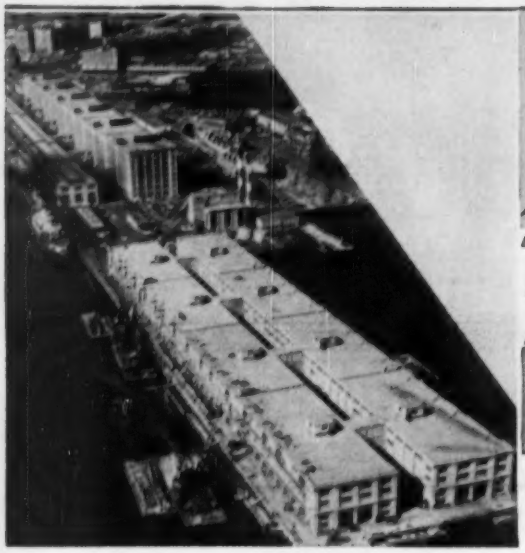
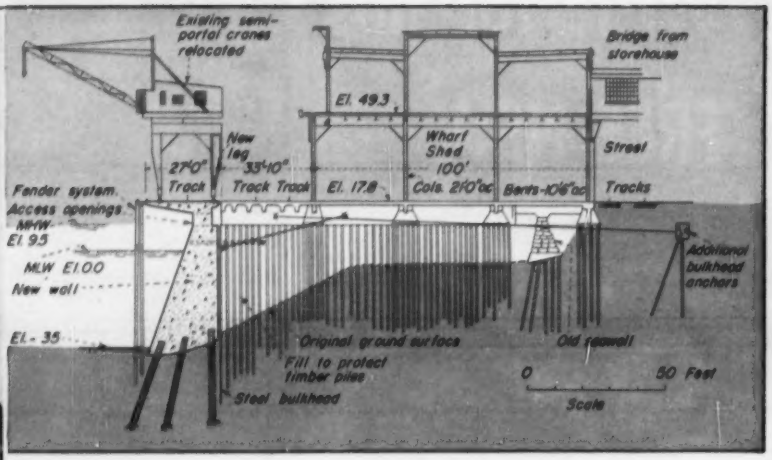




PROBLEM AND SOLUTION show clearly in section through old stone seawall, later timber and steel piling, and mile-long concrete monolith now being placed.

South Boston Army Base, built 40 years ago, is still a major marine facility. But time, marine borers, water action dictated major repair program.

Mile-Long Face Lift for a

Probably the biggest waterfront rehabilitation job involving only a single ship-handling facility anywhere in the United States is now under way in Boston Harbor.

The job amounts to complete rehabilitation of over a mile of bulkhead. This is being done to safeguard the underpinning of the huge wharf and pier that make up most of the South Boston Army Base.

This means casting more than 5,600 lin ft of roughly triangular-shape concrete monolith, 27 ft wide at the base and an average of 50 ft high with a 27-ft cantilevered concrete deck. Into the wall and deck will go more than 177,000 cu yd of concrete with a fly-ash component said to be far higher than in any previous sea-water structure; more than 120,000 lin ft of steel H-piles—and more than $10-million of U. S. and state funds.

Reason is a combination of age of the whole facility, inroads of marine borers, and an as-yet unexplained galvanic action that has dangerously eaten away 20-year-old steel sheetpile bulkheads.

• **Monument**—The South Boston Army Base, long a Boston landmark, can well be considered by exponents of present day building speeds. The whole base consists of a mile-long finger of installations extending almost due east into the harbor that includes the wharf and its pier-end, two 3-story, 1,650-ft-long 100-ft-wide wharf sheds, two 950-ft-long reinforced concrete pier sheds, an eight-story concrete wharehouse that is also 1,650 ft long, and various other structures, cranes, and trackage.

It was built in exactly eight months during the winter of 1917-1918, and has served shipping without a break since then.

Completed at a cost of about $28 million, about half the installation stands on tidal flats that had been previously filled in behind a stone seawall; another section is over filled land retained by timber bulkheads; other sections on additional fill and on some 27,000 untreated timber piles driven in front of the filled areas. These piles were capped by reinforced concrete wall sections, which in turn support the wharf deck.

• **Borers**—This forest of untreated piles proved to be the source of trouble. Most of the piles had long exposed sections—the ground line varied from low water to about 30 ft below—and some years after the base was in operation, the harbor became infested with limnoria, a small crustacean that burrows into and destroys wood structures, usually at the ground line.

By the early 1930's the piles had been reduced in section to an average of 66% of their original diameter at the low-water line.

To prevent further damage and eventual destruction of the entire installation, a steel sheetpile bulkhead was built around the base for the full 5,617 ft in 1935, and fill was placed behind this bulkhead to an elevation of about 1.4 ft below mean high water level. These sheets had a minimum

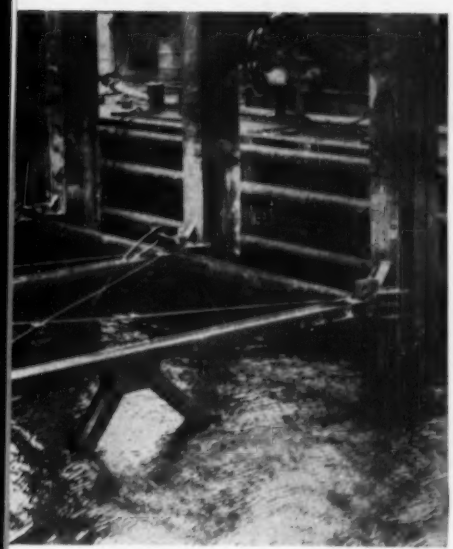
SOLDIER PILES (right) **hold form in place during tremie pour against template**

thickness of ⅜ in., were of deep arch sections and had heavy flange plates to increase resistance to bending. Their tops were anchored to the foundation walls of the wharf aprons and sheds. To reduce water pressure behind the bulkhead, 2,000 drainage slots were cut in the webs of the pile section, each slot being backfilled with sand and gravel to act as a filter.

But within a short time after placing the sheeting and the fill, small outward movements of the wharf and shed

WORK GOES AHEAD on installing new wall and deck, while foreign-flag freighters berth.

Weary Pier



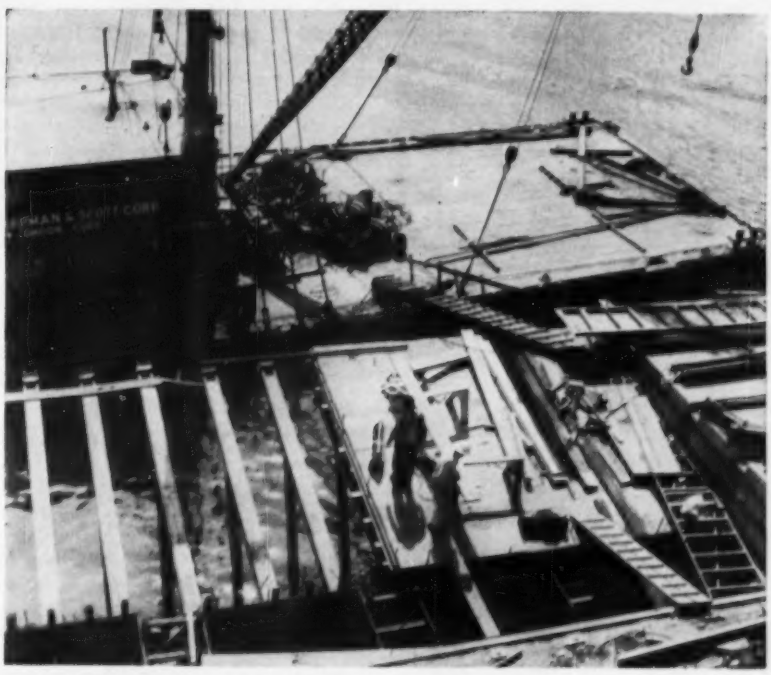
(lower left) that assures proper alignment. Plank facing on inside of form will remain.

were detected, and in 1937 a system of anchors was installed, which consisted of masses of concrete buried behind the original seawall, connected by tie-rods to the concrete walls capping the timber piles.

By 1944, the sandfill behind the drainage slots had been washed out enough to expose areas of the piles—which were again attacked by limnoria. The slots were closed, new fill was placed, some piles were replaced.

But a new trouble also began to ap-

SHAPE OF MONOLITH required special formwork to assure proper batter on water face of new wall, heavy framing to withstand pressures.



DECK FORM STEEL is in place as carpenters place timbers for reinforced concrete cantilever deck extension.

. . . Pier-wall is cast-in-place concrete

pear—loss of metal to the danger point by galvanic action from the sheetpiling itself.

• **Why loss?**—By 1953, corrosion had so attacked the sheetpiling that holes had appeared in the webs of more than 6% of the sheets, and in other spots the thickness of metal had been reduced to paper-thin proportions. Water flowing through the holes was carrying away the fill, and again exposing the piles to the borers.

Just as serious was the fact that analysis of the bulkhead stresses in the sheets and in the tie rods indicated that the metal was close to the yield point. Engineers felt it would be at least "unwise" to deepen the ten berths provided by the facility, and that some sections of the pier area were in danger of collapse.

Why the piles suffered such a great loss of metal is still a matter of lively debate, and has been the subject of numerous on-the-spot and laboratory investigations. Loss varied from the full thickness of the web down to 0.06 in., with greatest loss at the low-water line.

Most generally acceptable theory seems to be that the corrosion is caused by oxygen differentiation which sets up a galvanic cell, and may have a connection with pollution floating atop harbor waters.

• **How to fix?**—The Army itself had long since ceased to use the wharf and pier sheds and ship berths, and they had been serving commercial shipping under lease. Armed with a $9.9-million special federal appropriation, and a $1-million contribution from the state of Massachusetts, Army engineers late in 1953 called in the Boston consulting firm of Fay, Spofford & Thorndike to study methods of reconstruction and construction costs. Later, when the special appropriation was approved, the same firm was asked to make final plans and supervise the actual rehabilitation work. On completion, the facility will be operated by the state.

• **Design considerations**—Three principal schemes were seriously considered before the final decision was made to build a concrete gravity wall that would be cast against the existing steel sheetpile bulkhead.

The two discarded were for an open-deck wharf and for a concrete sheetpile bulkhead. The first was discarded principally because its service life would be shorter and maintenance costs higher than the other two methods. The concrete sheetpile plan was dropped eventually when studies showed that driving the piles to the required depth of 60 ft below mean low water would have been impossible in certain areas; that anticipated life would be shorter, and that the structure would have been the least determinate in design.

The mass concrete gravity wall, on the other hand, could be constructed without removing or disturbing the existing bulkhead; maintenance is estimated to be low; and the wall itself is considered to be capable of lasting indefinitely, with minimum repair.

• **Final design**—The cast-in-place wall, then, is designed to withstand full earth pressure from the harbor bottom—from 35 ft below mean low water to 10 ft above—and an unbalanced head of water of 7 ft. No advantage was taken of the value of the present bulkhead in making design calculations.

Base of the wall stands on a series of three lines of 14-in. steel piles, the outside two on batter. The piles are driven to rock or refusal (an average of 44 ft below the bottom). They are designed for a maximum load of 78 tons per pile, although under normal conditions of dead load only and full earth pressure, the load is only 65 tons per pile.

To make best use of materials, and utilize the existing bulkhead as a rear form, the gravity wall has a sloping outside face (giving it its triangular shape). To protect the concrete from damage in the tidal range, a facing of creosoted timber plank is provided on the outer facing above the low water line. This plank is used as a liner inside the tremie concrete form from the low water line (100) to elevation 109.3, and for the wall form above that elevation. All the plank formwork will be anchored to the concrete, but can be removed and replaced when necessary.

The cantilever deck is designed for a uniform line of 600 psf and AASHO H20-S16-44 truck loading, plus 30% impact. The two parallel railway tracks are designed for Cooper's E-40 loading. Calculations for crane loadings were based on a maximum of four 24-ton wheel loads under one loaded corner, including impact.

Crane equipment on the wharf consists now of two one-legged gantries—with their second leg mounted on a rail on the shed. When the new work is completed, these cranes will be rebuilt with a second vertical leg.

The fendering system will consist of two rows of piles—the outer row being of greenheart timber, the inner of creosoted yellow pine, both "sticks" being about 70 ft long. The fender system will be tied to the wharf edge though solid rubber chocks 4 in. thick.

• **Fly-ash concrete**—The entire gravity wall, below mean low water, is being poured by the tremie method from a floating plant with a maximum capacity of about 110 cu yd per hour. Sand and gravel are supplied by barges, as is cement; water and fly-ash are pumped from the shore.

The amount by weight of fly-ash being used at the Army Base exceeds that used in any previous salt-water construction job by a wide margin. Studies conducted over a period of several years by the New England Division of the Corps of Engineers have been aimed at two objectives: to lower costs, and increase the durability of the resultant concrete — especially concrete exposed to seawater and freezing temperatures. The accompanying table shows the fly-ash specification established by the Corps for the job:

Composition*	% by Weight
SiO_2	40.0
Al_2O_3	15.0
Acid soluble sulphate (SO_3)	3.0
MgO	3.0
Loss on ignition, not more than.	5.0
Moisture content, not more than	3.0
Carbon content, less on ignition @ 1500F, not more than	3.0

* Fineness, spec. surface, Blaine meter, not less than 3000 cm/gram. Material retained on 325 mesh sieve, not more than 10%.

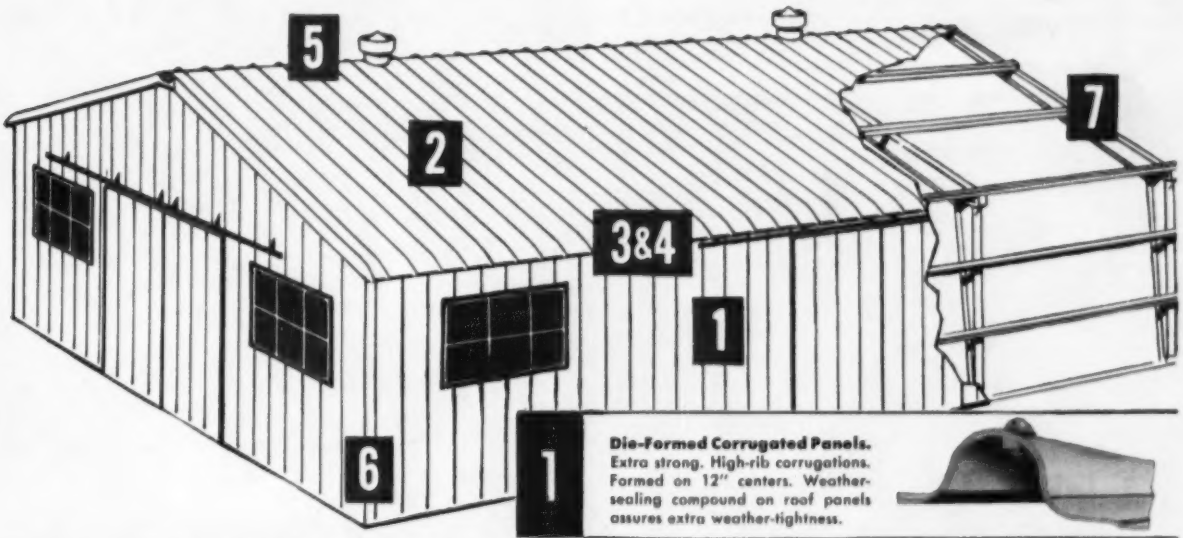
Fly-ash content of the concrete is roughly one-third by volume.

So far, the strength results with the mixture are, say the engineers, surprisingly good. Specifications call for a required strength of 3,000 psi after 90 days. Test cylinders indicate a range of between that figure and 6,000 psi, with the mean strength considerably above the specified lower limit.

Observers believe that if the strengths continue to check at high levels—and it is anticipated that they will—a new approach to concrete composition may be indicated in future underwater construction, particularly in climates where alternate freezing and thawing is likely.

Whether the theoretical cost reduction can be achieved, however, is problematical. Additional handling equipment is necessary, weighing operations are required, and mixing is more involved than when using air entrainment additive alone. However, there seems to be little doubt that property results will match—and perhaps exceed—those obtained with more common concrete composition.

• **Construction**—Two biggest problems for Merritt-Chapman & Scott, who holds



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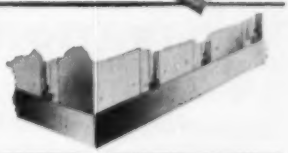

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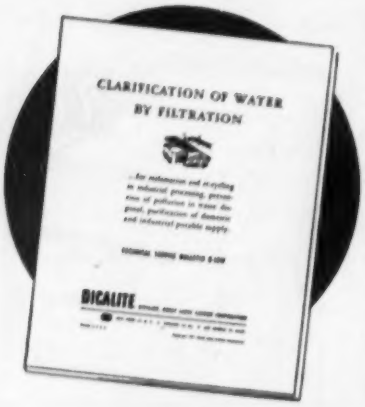

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. . . Pier Formwork for the Wall

the general contract for the reconstruction work, were to work in such a way as to permit continued operation of the busy shipping facility, and to devise forms that could hold the weight of the concrete and could be set easily, without undue interference to shipping.

Officially, the wharf and pier can accommodate 10 ocean-going freighters, but only nine of the berths are actually used (the berth at the water end of the installation having long been considered too exposed for practical use). Original plan was to start at Berth 10 —on the northern inshore side of the pier—and work around the perimeter backward, down to Berth 1 on the south inshore side.

The demands of shipping—and the resultant need to use cranes and some of the shed facilities—however, have dictated a different succession. Berths 10, 9 and 8 are first, then 3, 4, 5, 2, 1, leaving Berths 6 and 7—almost at the center of the wharf on the south side —for the last.

Outgoing cargoes from the base are largely metal scrap for European markets, incoming cargoes are finished steel and miscellaneous items.

To handle the job, the contractor has used his big floating batch and mixing plant, four barge-mounted cranes, a floating pile-driver, a dipper dredge, and numerous tugs and work boats.

• **Formwork**—Working with the Blaw-Knox Co. of Pittsburgh, the contractor developed roughly triangular steel forms, with the skin plate attached to the long leg of the triangle, big enough to form a gravity wall 49½ ft high, 27 ft wide at the bottom, and 8 ft wide at the top. Bulkheads, held in place by triangular shaped trusses complete the side forming—the old sheetpiling serving as a back form.

A strongback on the forms makes it possible to place them in the water at the right batter, while a template located on the outer edge of the old deck guides placement to correct line and grade.

Once the form is in place on the bottom (which has been dredged to an elevation of 63.0 ft. then covered with a 2-ft sand blanket), 11 heavy soldier piles are put down through slots on the outer edge of the forms, and driven to a 15-ft penetration in the harbor floor. To provide resistance to thrust at the top, the soldier piles are tied back to piles driven through holes that have been cut through on the deck of the existing structure.

Placing of the gravity wall proceeds in 94.6-ft alternating sections, so that when pours between sections are made, previous pours provide bulkheads. By this order, the contractor contemplates a total of only 60 re-settings of the forms.

Forms for the 31-ft-6-in. deck cantilever consist of a number of roughly A-shaped trusses mounted on the outer side of the gravity wall, held in place in a precast slot in the wall, and by anchor bolts.

Other work included in the rehabilitation program is extension of utilities on the new deck, and considerable repair and rehabilitation of the buildings and other facilities provided on the wharf and pier.

Completion is now scheduled for late spring, 1957.

David M. Brown is resident engineer on the job for Fay, Spofford and Thorndike; Louis Lake is general superintendent for the contractor. The program is under general supervision of the New England Division, Corps of Engineers, under Brig. Gen. R. J. Fleming, Jr., division engineer.

Air Pollution

PHS allocates half million for fiscal 1957 research

The U. S. Public Health Service has allocated $468,025 to other federal agencies for research activities in community air-pollution work during fiscal 1957.

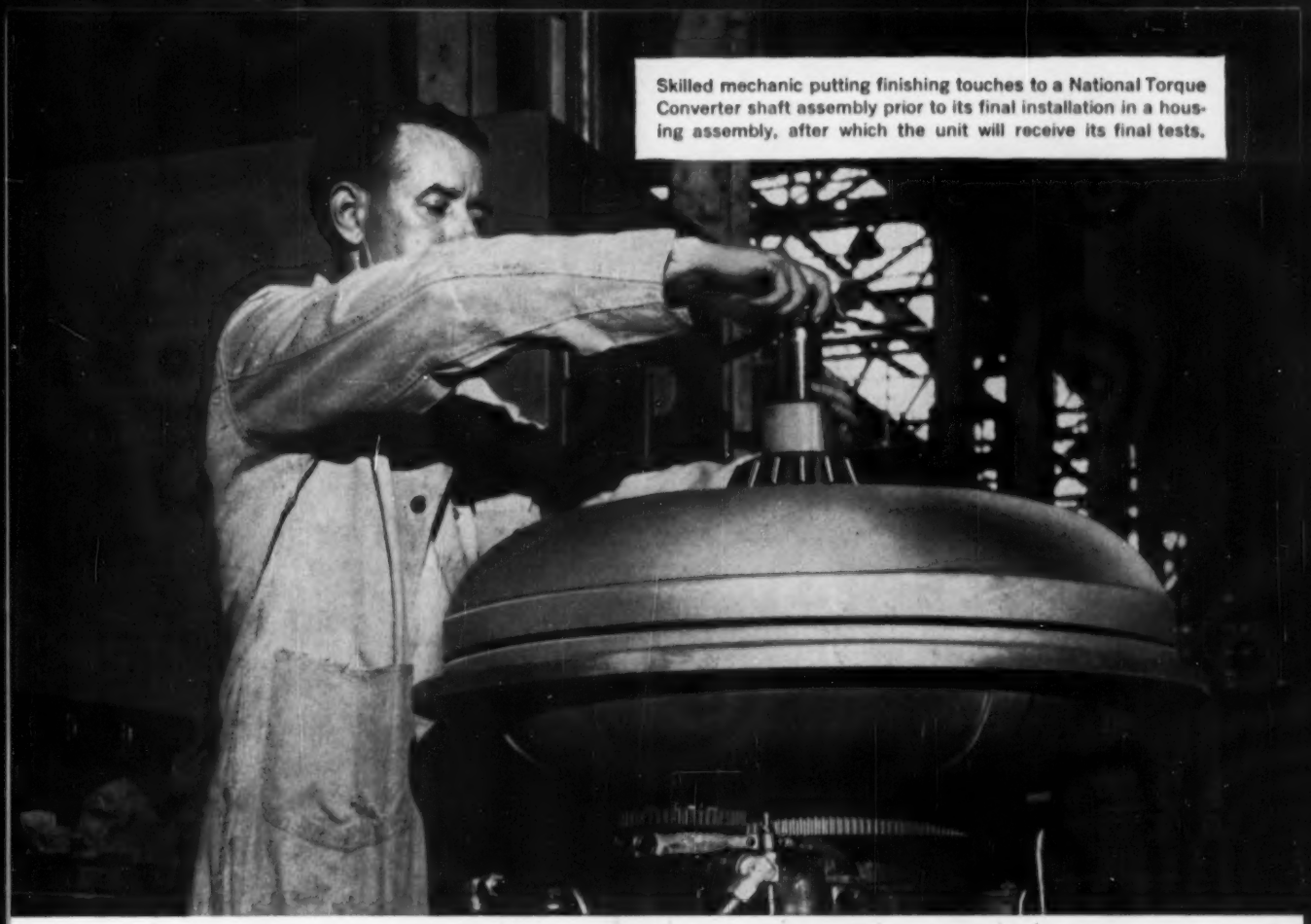
• The U. S. Weather Bureau will continue studies started last year on the dilution and dispersal of contaminants in the atmosphere, under a $185,000 allocation.

• The National Bureau of Standards received $125,000 and will undertake development of rapid field methods of sampling and analysis for the determination of individual substances in the atmosphere.

• The Interior Department's Bureau of Mines received $125,000 to continue its investigation of the causes of inadequate incineration of combustible wastes and to continue its evaluation of sulphur dioxide removal processes and the effects of fuel and lubricant characteristics on the composition of gases exhausted from internal combustion engines.

• The Library of Congress last year began preparation of an annotated bibliography on air pollution and will receive funds to continue. The Department of Agriculture has agreed to assign personnel to PHS to conduct studies of plants as air pollution indicators.

In addition to the agreements noted above, the Surgeon General recently announced the award of 12 grants for air-pollution research by non-federal institutions, totaling $318,568.



Skilled mechanic putting finishing touches to a National Torque Converter shaft assembly prior to its final installation in a housing assembly, after which the unit will receive its final tests.

The National Torque Converter is a dependable "constant horsepower" unit

Simple design, rugged and durable . . . precision parts assembled by skilled, experienced mechanics . . . standard and special tests of parts, of sub-assemblies, and of completed torque converters

That is why National Torque Converters provide uniformly smooth transmission of power from engine or motor to the job or load. All the shock of quick starting and fast acceleration of the load is absorbed hydraulically by the torque converter. This enables the engine to attain its optimum speed quickly and to deliver its full horsepower constantly . . . and without lugging or stalling.

Result: Job or work cycles will be completed faster and your equipment will deliver more work per unit per operator per day . . . every day . . . with minimum maintenance . . . with extended service life. It can be truly called a "constant horsepower" device.

Each National Torque Converter is a complete, integrated unit tailored to the application. And with a choice of 6 basic hydraulic circuit sizes, each with a range of input ratings, the National Torque Converter can be matched exactly to prime movers of 100 to 1000 hp in a wide variety of industrial applications; construction, excavating, drilling, earth-handling, logging, and mining equipment.

Why not let a National Supply engineer study your power-transmission problems and tell you just how National Torque Converters can help you? Or send for a copy of our Bulletin No. 468.

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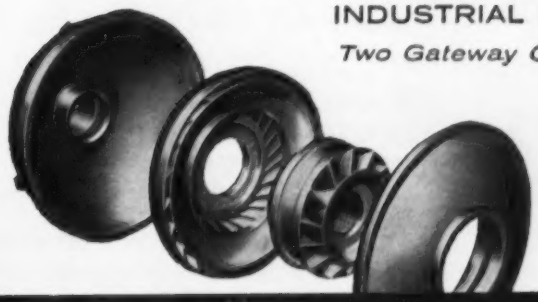
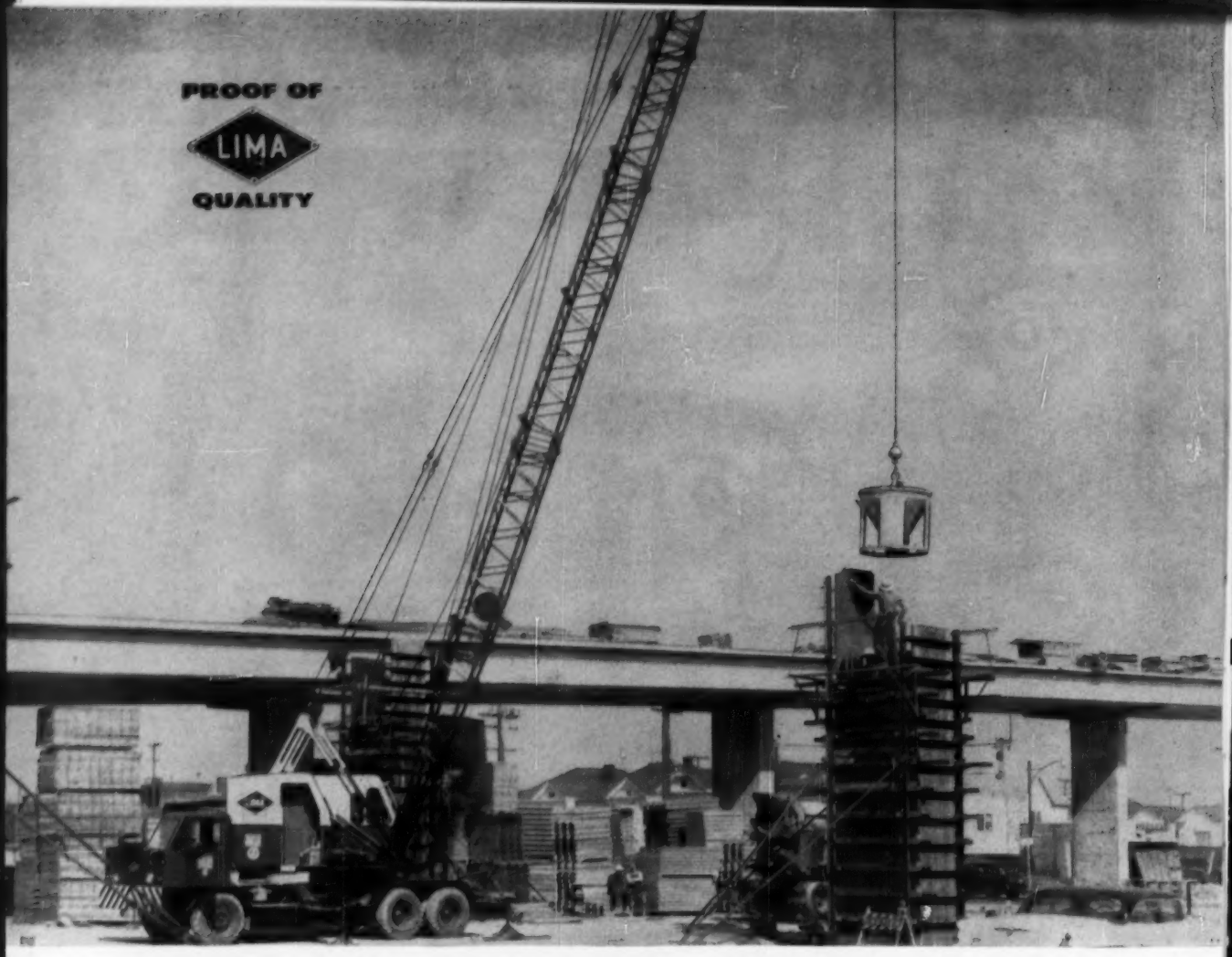


Pace-setters in the progress of industrial power transmission



Versatile, truck mounted LIMA 44 crane speeds freeway construction for Grove, Shepherd, Wilson & Kruge of California, Inc.

This 25-ton Lima Type 44 truck crane is helping to construct the West Coast's largest double deck freeway, at Oakland, California. Owner Grove, Shepherd, Wilson & Kruge of California, Inc., uses it for a variety of heavy duty lifting jobs . . . transferring concrete from truck mixers to hoppers on the bridge deck (shown above); lifting heavy forms, steel and other materials. They report:

"This rugged Lima is tops for the tough assignments that call for a sturdy, dependable machine that stays on the job. It gives us fast, smooth, precise lifts every time. Downtime is no problem, so operating costs are low."

The Lima Type 44's truck mounting pays extra dividends, too. Traveling under its own power, at automotive speeds, the machine gets from job to job *fast*. On the job, the Lima's oscillating tandem type rear axles make it highly mobile off the highway, too . . . and they make for firm working footing on uneven terrain. Grove, Shepherd, Wilson & Kruge concludes: "The Type 44's fast travel speed and mobility let us use it to serve widely separated jobs quickly and economically."

You, too, can rely on Lima's quality design and construction to insure top service on *your* jobs. These ruggedly built, fast-working machines guarantee you top output at lowest operating cost. Quality pays . . . and Lima quality *pays off for you!* Find out about it from your nearby Lima distributor, or write Construction Equipment Division, Baldwin-Lima-Hamilton Corporation, Lima, Ohio.

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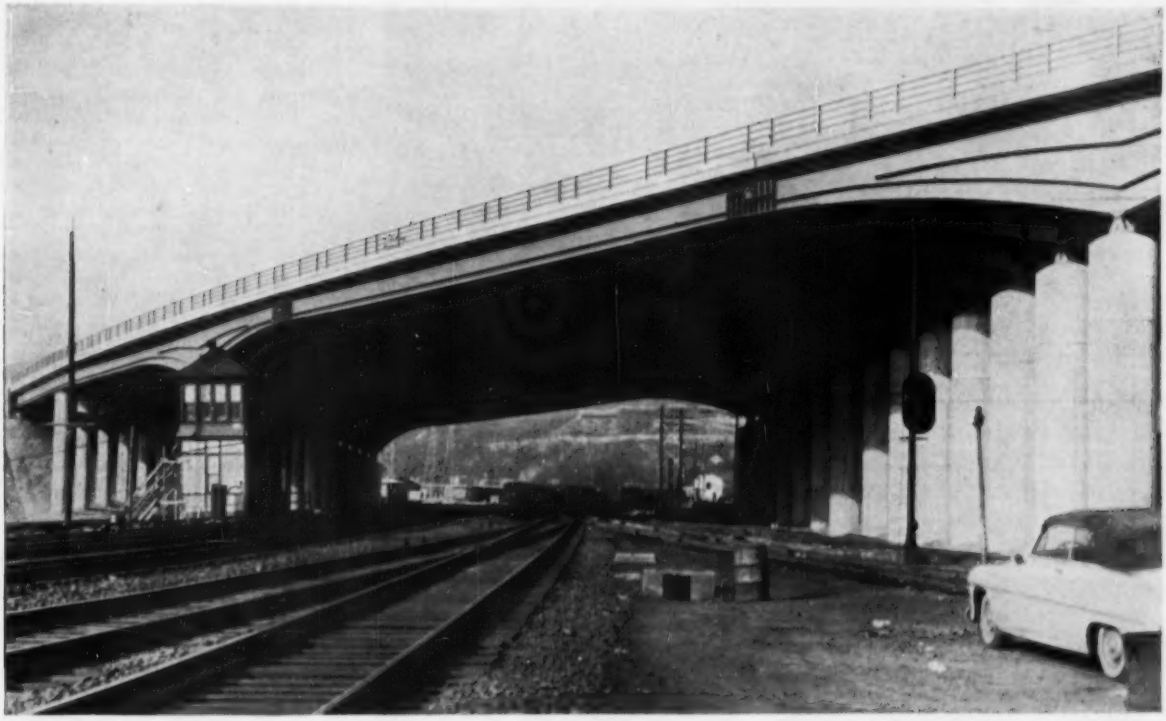


Spanning 234 ft above congested railroad tracks . . .

Viaduct Sets Welded-Girder Record

Edward J. Ramer
Principal Civil Engineer (Design)
N. Y. State Department of Public Works
Albany, N. Y.

Setting a new span record for all-welded plate-girder construction in the U.S., a New York Thruway viaduct spans 234 ft across the Erie Railroad near Suffern, N. Y. Believed also to set a world mark for girders of the single-web type, the long span was necessary because of track congestion below.

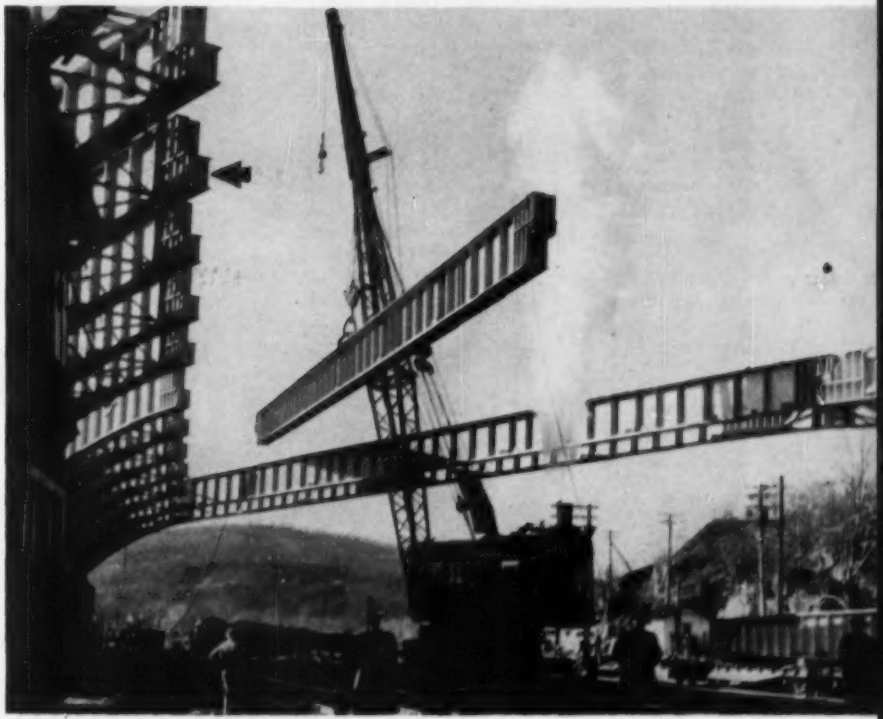
The viaduct is actually two 3-lane bridges side by side. Six spans make up its total length of 794 ft. Each span contains 14 girders, spaced 8 ft 4 in. c-c.

The record-setting girders are made up of 50-ft cantilevers and a 134-ft suspended member. The cantilevers extend from adjoining 125-ft anchor spans.

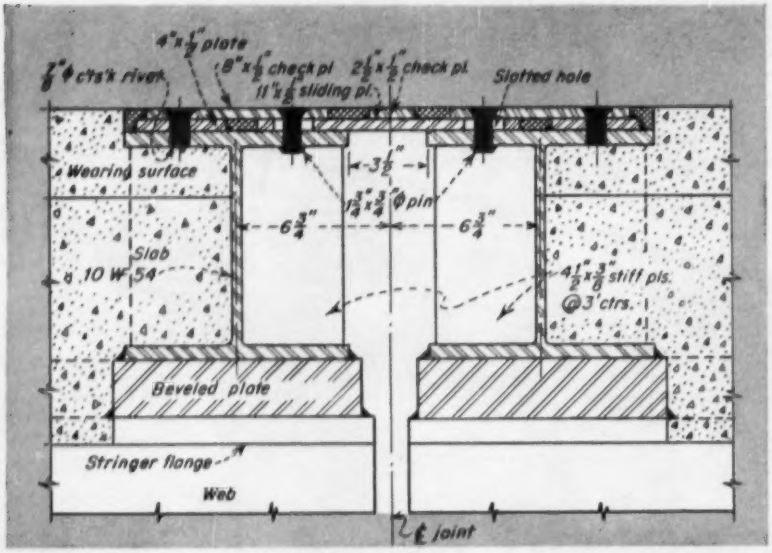
The remaining three spans—97½ ft at the west end of the viaduct, 117½ ft and 100 ft at the east end—are simply supported.

Besides traffic lanes 12 ft, 13 ft and 12 ft wide, each bridge carries two 6-ft-wide strips for maintenance vehicles and disabled cars and two 2½-ft-wide safety walks.

The previous span record of 200 ft for welded plate girders in this country was



SUSPENDED GIRDER is one of 14 comprising the middle section of the record span. Supporting girders (arrow), cantilevered 50 ft from adjacent bays, complete the span.



EXPANSION JOINT is bridged, for roadway continuity, by a sliding steel plate. To prevent water from leaking to the railroad below, the joint is calked with rubberized asphalt.

established in construction of a bridge across the San Jacinto River in Texas (ENR Apr. 2, 1954, p. 32). European bridge builders, however, have used multiple-web construction for much longer spans. Welded box girders in the Pont Corneille, a Seine River crossing at Rouen, France, for example, span 328 ft (ENR Mar. 12, 1953, p. 42).

• **Built on sharp curve**—The New York State Department of Public Works adopted the cantilever and suspended span for the viaduct as the cheapest design that would be shallow enough to clear the Erie tracks by 22½ ft, as required by the railroad. Continuous girders were ruled out because of the skew and curvature of the crossing. The viaduct occurs in a curving stretch of the thruway, where the Hudson section of the superhighway swings 90 deg from its north-south alignment to link up with the east-west direction of the Tappan Zee Bridge across the Hudson River (ENR Dec. 15, 1955, p. 25). Cramped by topography and railroad operations in the vicinity, the bridge designers had to round the curve on a 2,000-ft radius, a little tighter than the minimum standard of the thruway.

• **Composite deck structure**—Once the general type of structure was determined, comparative cost estimates dictated all-welded girders and composite construction. The 7½-in. reinforced-concrete deck participates with the girders in carrying loads. Composite action between slab and girders is developed with spiral-bar shear connectors welded to the top flanges of the girders. The structural slab is topped with a 4-in. concrete wearing surface.

Supports for the viaduct superstructure are reinforced concrete columns and abutments, founded on cast-in-place concrete piles. The piles were driven to 30 tons minimum resistance. Depth of penetration varies from 10 to 45 ft.

Girder depth throughout most of the length of the bridge is 4 ft 8 in. It is enlarged to 11 ft, however, at the columns for the 234-ft span, to resist large cantilever bending moments.

Web plates of the girders are ⅜ in. and ½ in. thick. Flanges range from ¾ in. to 3 in. in thickness, 18 in. to 24 in. in width. Webs are stiffened both sides with vertical plates, except on the exposed side of outer girders. Here, for better appearance, horizontal stiffeners were used.

• **Bearing design**—Because of bridge curvature and to eliminate any possible torsion, a special support was devised for the suspended girders. Actually not a suspension at all, the connection is constructed so that the so-called suspended members are seated on the cantilevers. The bearing at one end is rocker-type, at the other end, sliding type. Girder ends are notched out for the bearing assemblies, so that no break in girder elevation occurs at the connections.

These girder connections and armored steel joints in the deck above are designed to permit the structure to expand longitudinally. While fulfilling this function, however, the deck joints are also required to prevent leakage of water to the railroad.

Bridging each of the two transverse expansion joints in the deck, an 11x½-

COMPLETED VIADUCT sports trim lines, due partly to the horizontal web stiffeners used on outside girders. Vertical stiffeners were used elsewhere. Girder depth is 4 ft 8 in., increasing to 11 ft at the columns on each side of the tracks.

Reinforced concrete bridges start quicker . . . are completed sooner because all necessary materials and labor are readily available from local sources. These faster starts save months of delay. Furthermore, reinforced concrete is a flexible medium that permits an infinite variety of imaginative designs. Structures built with reinforced concrete are rugged . . . highly resistant to wind, shock, and quake. They are lower in first cost and require less maintenance. On your next bridge or overpass, design for beauty plus economy . . . design for reinforced concrete.

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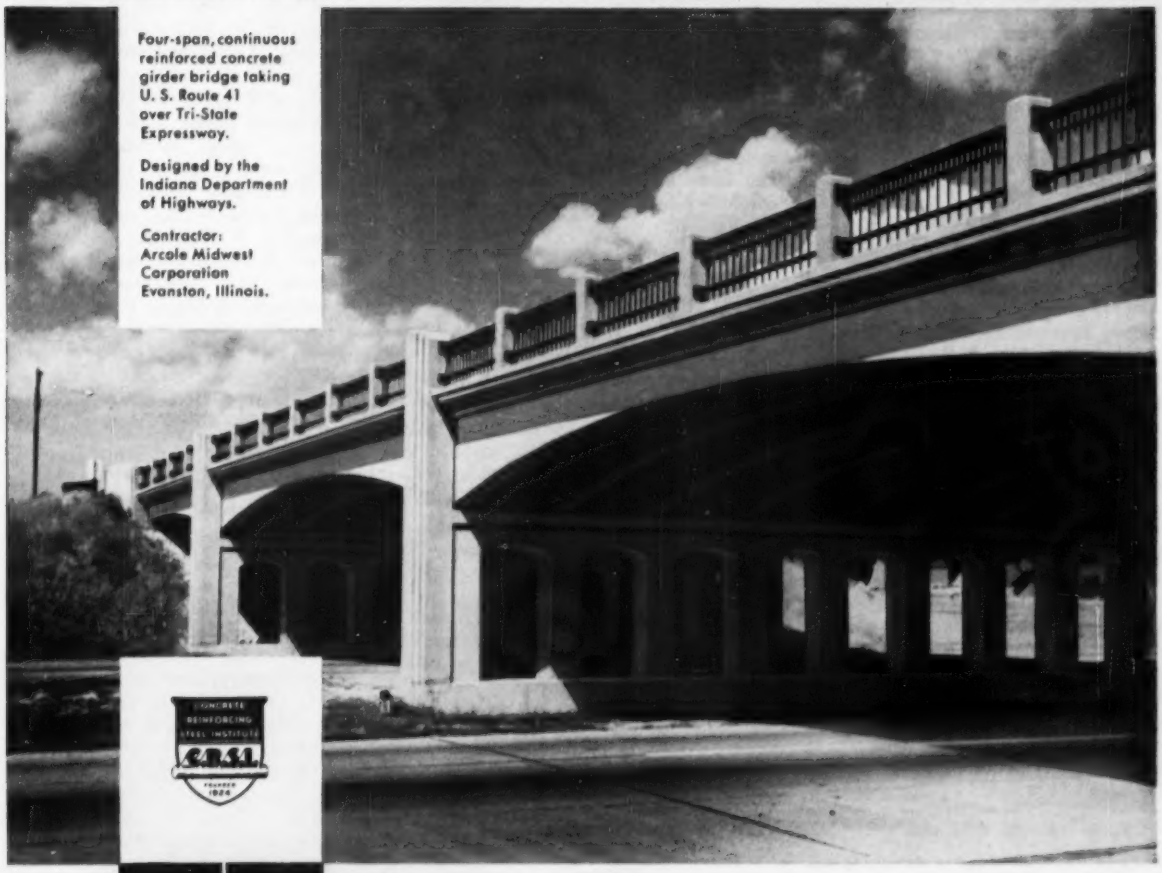
are completed sooner



Four-span, continuous reinforced concrete girder bridge taking U. S. Route 41 over Tri-State Expressway.

Designed by the Indiana Department of Highways.

Contractor: Arcole Midwest Corporation Evanston, Illinois.

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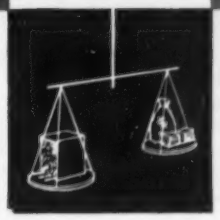

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Blueprints and diazo prints are getting better every year

In the 1890's, uniform, sharp reproductions were hard to get . . . and for good reason! Manufacturers of sensitized papers took ordinary paper stock and the best paint brush they could buy, then *painted on* emulsions! Color of developed blueprints often varied greatly from one end of the sheet to the other.

Through the years, better blueprint and diazo papers resulted from technological advances in three fields. In the *paper industry*, mills perfected higher quality stock to accept improved emulsions. Improvements in emulsion resulted, in turn, from production of purer *chemicals*. Then, to transform superior emulsion and stock into better sensitized paper, Post designed and built their own *controlled coating* machines. Each machine rigidly controls every phase of blueprint and diazo paper production for absolute uniformity from roll to roll.

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in. steel plate maintains continuity of the roadway. The plate is supported continuously along either side of the joint in a pocket or slot in which the plate is free to slide. The pocket is formed by an assembly of steel plates welded to a transverse header beam. The beam is welded in turn to the girders. The sliding joint, calked with rubberized asphalt, is waterproof.

• **Design specifications**—The viaduct was designed under American Association of State Highway Officials specifications for H20-S16 live loading. Welding design was based generally on the American Welding Society specifications for welded bridges. Certain amendments were made, however, based on the Public Works Department's 15 years of satisfactory welded-bridge experience. Electrodes with coverings of low-hydrogen type were used for all welding—shop and field. In general, the welds are fillet type. But at critical spots in the special bearings a combination of butt and fillet welds was used.

Materials used in the bridge included 3,100 tons of structural steel, 675 tons of bar reinforcement, 7,300 cu yd of concrete and 32,000 lin ft of piles.

Preliminary studies and designs and all contract plans, specifications and estimates were prepared in the Albany office of the New York State Department of Public Works, under the direction of E. W. Wendell, deputy chief engineer in charge of bridges, grade separations and structures (since retired and succeeded by C. F. Blanchard). John W. Johnson is superintendent and Thomas F. FitzGerald, chief engineer of the department. Substructure contractor and steel fabricator and erector was the Klevens Corp., Yonkers, N. Y.

Generator Flaws Show Up At McNary Dam Powerhouse

Deficiency of an English Electric Co. generator during a preliminary test run at McNary Dam powerhouse on the Columbia River will delay its entry into service by several months.

The generator failed to maintain the minimum temperature specified during overload. However, the Corps of Engineers has emphasized that the deficiency was not in basic design and the unit would be tested in December.

The British firm supplied Units 13 and 14 at McNary. The first 12 generators already in operation were manufactured by General Electric Co.

According to a statement by Col. Myron E. Page, Jr., Walla Walla, Wash., District Engineer, "The fault was not in the design but rather in the adjustment of clearance between the rotor and the encircling stator field, and the necessary readjustments will require considerable time."

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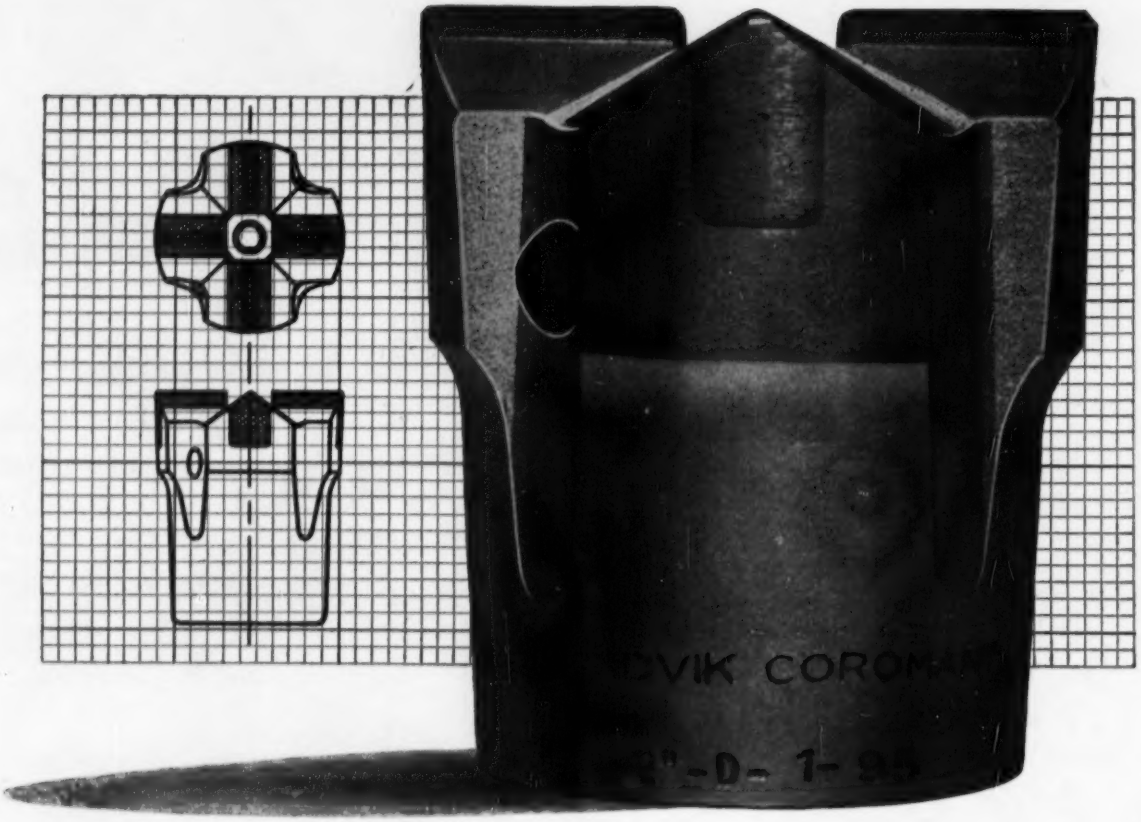
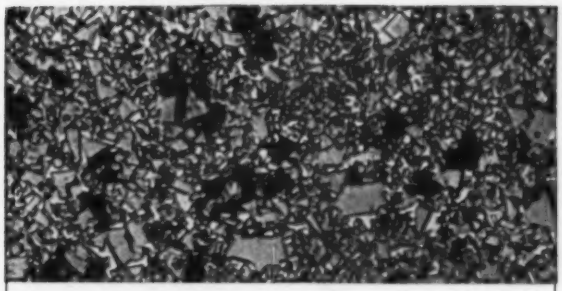
THIS ROCK BIT IS PRECISION-MADE FOR A HIGHER PERFORMANCE



Nothing tougher and more wear-resistant than the insert of a Sandvik Coromant 776 bit

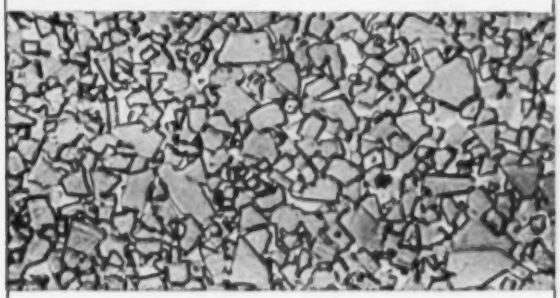
Rock bits that go on *and on* must have highest-grade tungsten-carbide inserts. Nothing but tungsten carbide in its purest state is good enough, will last as long. That's why the carbide that goes into a Sandvik Coromant 776 bit is meticulously controlled.

Sandvik, the world's largest manufacturers of brazed-in tungsten-carbide inserts for rock drilling, control every phase of production. Coromant carbide is scrutinised for impurities from the very first stages of processing the tungsten ore, right through to the final inserts. Add to that Sandvik's special process of securing the insert to the body, employing an exceptionally strong bonding metal, and you know why a Coromant 776 bit lasts longer. In 1955, one billion feet were drilled with these inserts, all fitted to Sandvik Coromant bits or integral steels. *Nothing is more conclusive of the quality of Coromant bits than this figure.*



LOW QUALITY TUNGSTEN CARBIDE

These are unretouched, 1200-times enlarged microphotos. Above, carbide full of impurities. Those black marks are contaminations which are present when production and quality control are deficient. Contamination of this kind weakens the carbide and reduces its working life.



SANDVIK COROMANT TUNGSTEN CARBIDE

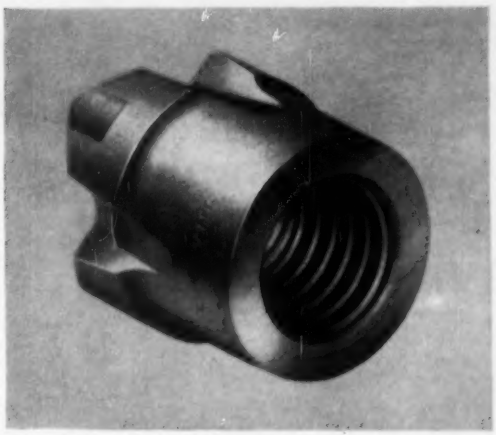
This is Coromant carbide. Notice the uniformity of size and the even distribution of grain. Coromant inserts are free of dangerous porosity and impurities—the reason they go further, have greater strength.

Nothing stands the strain like the Swedish body of a Sandvik Coromant bit

When you put the strongest possible tungsten carbide into a rock bit, the body has to be the strongest available to take the extra strain. That's why Coromant bodies are made of high-quality Swedish alloy steel. But that's not all. Inserts and clearance are cylindrically-ground and the insert ends precision-tooled to exactly the same height. This means *smoother* drilling and *smoother* holes, because the load is equally distributed on all four inserts. *Precision engineering such as this give Coromant bits a longer life!*

Nothing fits like the precision-milled threads of a Sandvik Coromant bit

In order to get a smooth profile of the highest accuracy, Coromant threads are precision-milled in a special thread-milling machine and not made with a tap. Precision-milling too protects the skirt from common fatigue failures.



SANDVIK COROMANT 776 BITS

and Sandvik Coromant integral steels are available in standard sizes through Atlas Copco, who, in their own field, are the world's largest manufacturers of rock drills. Contact any of these offices *today* for further information and a demonstration.

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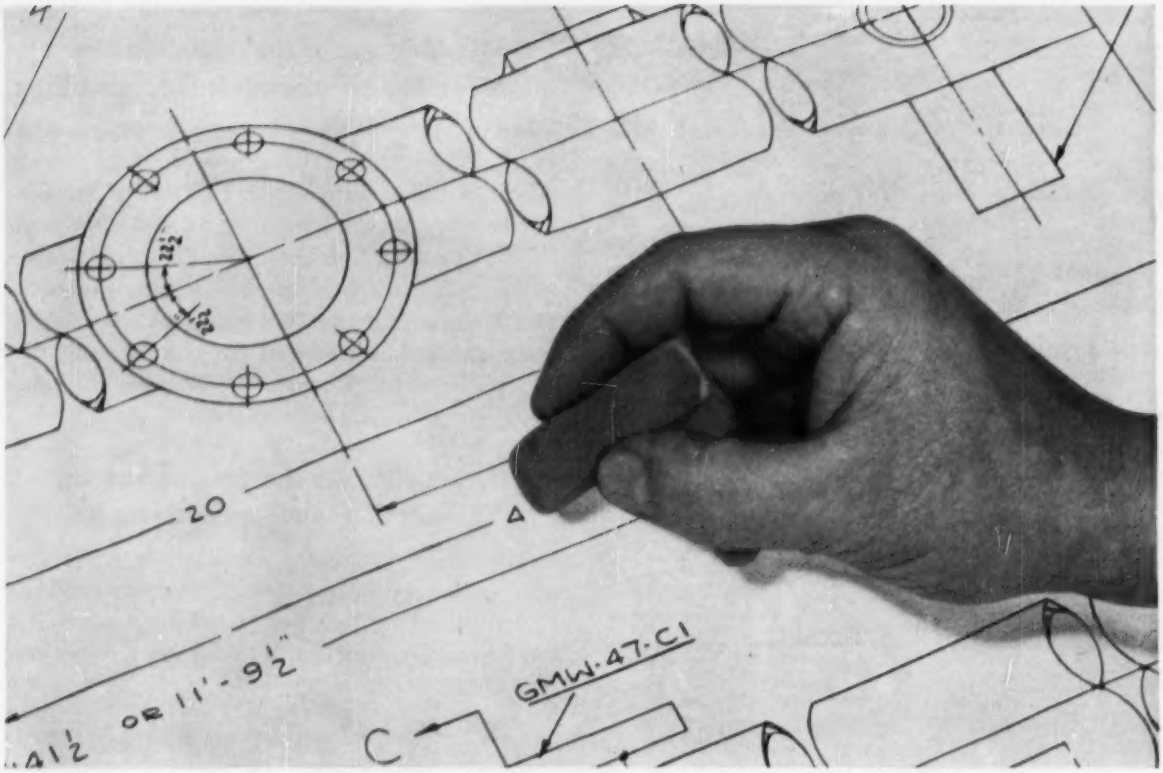

Photographic lines on a Kodagraph Autopositive Paper Translucent intermediate can be quickly removed with ordinary eraser.

To simplify design changes

How can you make changes in a drawing—but still keep the original design intact—without costly retracing? In thousands of drafting rooms they follow this short cut: *Reproduce the drawing on Kodagraph Autopositive Paper Translucent.*

This gives you a positive photographic intermediate *directly*, without a negative step or darkroom processing. Remove the unwanted detail from this print with a moistened pencil eraser. Add the new design with pencil or ink—and presto! *You have a new print-making master* on high-quality vellum-type paper, which will turn out sharp, legible blueprints or direct-process prints at fast machine speeds.

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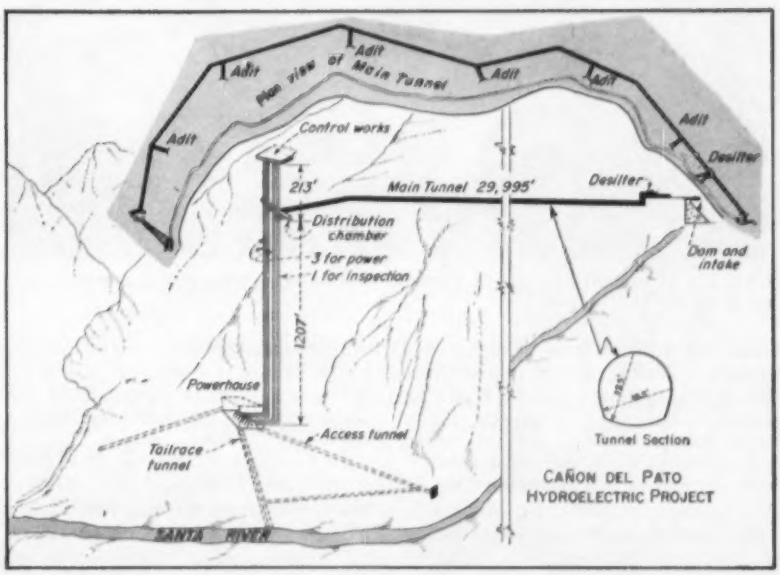
WASHED OUT intake structure for Peruvian hydroelectric project was redesigned to cope with floodtime rushes of aluvion.

The Canon del Pato Hydroelectric Project—

Peru Harnesses a Plunging River



Peru's Canon del Pato hydroelectric project at Huallanca on the west slope of the Andes is nearing completion.

Harnessing the Santa River as it plunges 1,500 ft in 7 mi down the narrow canyon will mean an initial power capacity of 50,000 kw, later to be increased to 150,000 kw. This power—a sizable jump for Peru—will supply the Chimbote steel mill 54 miles away.

Cost of the power project and steel mill (also nearing completion) will run about $40 million. Construction is being carried out by the Societe d'Exploitations Industrielles (a French financial-industrial group with a $25.5-million contract) and the Corporation Peruana del Santa (a consortium of Peruvian construction engineers with a $16-million contract). The consortium is in charge of all construction.

• **Dam, tunnel and powerhouse**—To store the 90,000 acre-ft of water neces-

sary to supply a 1,400-cfs minimum flow to the powerhouse, a 177-ft-high concrete gravity dam is being built at a point in the gorge only 100 ft wide. The dam and an intake set in the right bank are 6¼ miles upriver from Huallanca. To reach the powerhouse (1¼ miles outside Huallanca) the diverted water must travel through a 5¼-mi, 18.5-ft-dia tunnel driven through granite.

The tunnel sits beneath 490 ft of overburden as it cuts through the mountain; total excavation amounted to 306,000 cu yd. It will be concrete-lined for its entire length, and is expected to carry water flowing at 4 fps. Eight adits leading to headings along the tunnel line were used in construction.

At the powerhouse site, four 1,430-ft-deep, 10-ft-dia shafts were cut, working from both above and below. Three will be used for power; the fourth, with an elevator installed, will be kept free for inspection. The main tunnel ends in a distribution chamber set 213 ft below the top outlets of these vertical shafts. And at the bottom of the shafts three 7-ft steel-lined penstocks lead into the powerhouse to feed water to the generating units at a rate of 265 cfs for each unit. Each shaft will supply two units.

Six generating units of 25,000 kw each are to be installed in the powerhouse—a subterranean chamber 367 ft long, 36 ft wide and 49 ft high. Operating at a head of 1,350 ft, five will function and one will be a standby. A unit is made up of two Pelton-type turbines with a generator in between—an unusual but not unique arrangement.

Discharge will flow to the Santa River through a 1,558-ft tailrace tunnel.

ENTRANCE TO POWERHOUSE, a subterranean chamber 367 ft long, 36 ft wide and 49 ft high.

CABLEWAYS played a big part in construction. This one is being used to move materials for lining the main tunnel.

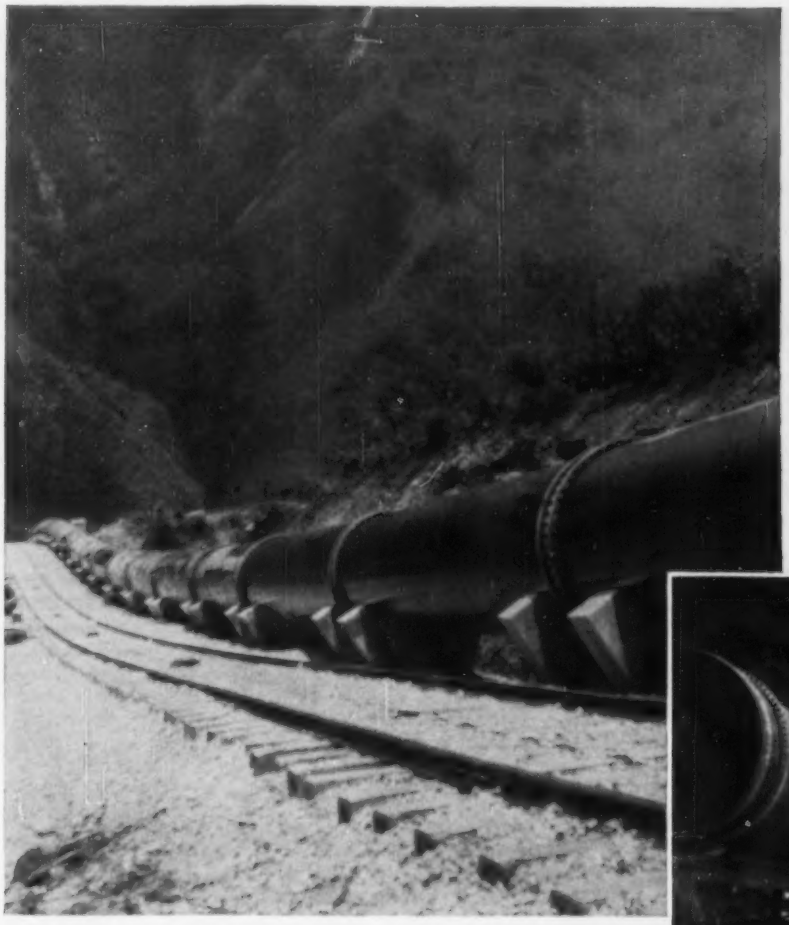
• **Aluvion**—Two hundred glacier mountain lakes feed the Santa River. And at floodtime, a rush of mud and rocks originating in 15 or 16 of these lakes passes through narrow Canon del Pato. This aluvion—as the phenomenon is called in Peru—wiped out during a serious flood in October, 1950, much of the construction and installation already in place.

After the 1950 aluvion, the New York City firm of Sanderson & Porter, consultants for the hydroelectric project, introduced some new designs—among them, redesign of the intake structure. It is now being set in the side of the canyon and parallel to the river flow, thus removing it from the full impact of floods. Also, in the event of an aluvion, a warning system will permit electrically controlled steel floodgates (being made in France) to be closed until it is past and the intake area cleared.

To remove the enormous amount of sand that such a swiftly flowing river carries, a sandtrap has been built into the tunnel about 1,820 ft from the intake. There for a short stretch the main tunnel branches out into three egg-shaped sections and takes a 118-ft vertical drop to gravity-remove the silt.

The power project is expected to go into operation in May, 1957. Transmission lines—aluminum conductors for the first half of the distance, copper for the remainder—will be strung on 21-ft towers over the 54 miles to the Chimbote steel mill. Transmission voltage will be 13,800 v.

First designs for utilizing the force of the Santa River were made back in 1913 by Santiago Antunes Mayola. In 1942, the Santa Corp. started work on the project with Barton Jones, an



A crew averaging 17 men, using a minimum of special equipment, moved the pipe sections into position from the car to the concrete pier saddles. Engineering and construction was by Ebasco Services, Incorporated.

The 30-ft pipe lengths were transported to the site from a railhead at Carhuamayo by truck-trailer over a 60-mile tortuous mountain road to a point near the surge tank. From there, pipe sections were lowered downhill, into position by means of an inclined railway running parallel to the course of the penstock.

Steel Penstock Harnesses Paucartambo River for Peru's Latest Hydroelectric Power Plant

In Peru, as in all the other rapidly growing countries of South America, electric power is one of the vital keys to progress. Projects like the harnessing of Peru's Paucartambo River by the Cerro de Pasco Corp. are opening the door to industrial expansion and higher standards of living.

Lifeline of this modern power station is a 4,600-ft penstock in diameters from 74" to 80", made possible by the use of steel pipe and Dresser Couplings. Total vertical drop from a high-level supply tunnel to the power station below is 1,550 ft.

The pipe wall thickness ranges from 7/16" at the top to 1 13/16" at the bottom where the line gives bottle-tight service under a 1,730-ft static head.

Dresser Penstock Couplings made it possible to eliminate expansion joints and follow the terrain with a minimum of grading. Since the penstock is located in an earthquake area, the resilience of Dresser gaskets gives extra insurance against damage by earthquake shock.

With the pipe in place in the saddles, wrenches were the only tools needed to seal the Dresser Couplings, forming dependable, permanently tight joints.

The fast, easy installation through the use of Dresser Couplings permitted completion well within the allotted time schedule and estimated cost.

For useful engineering data on other successful Dresser-Coupled steel penstock installations, send for new illustrated penstock brochure. Write: Dresser Manufacturing Division, Bradford, Pa. Sales offices in: New York, Philadelphia, S. San Francisco, Chicago, Houston, Denver, Toronto and Calgary.

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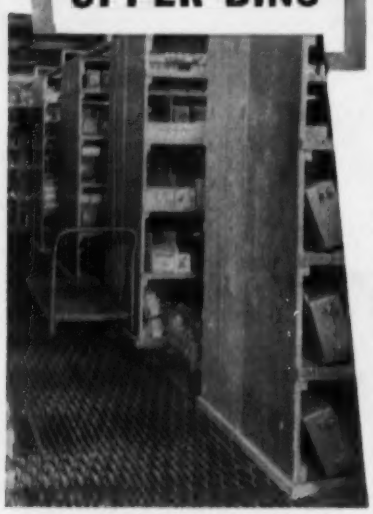
Mezzanine GIVES SAFE ACCESS TO UPPER BINS



To solve the storage problem in this plant, storage bins along two walls were extended to the ceiling. But to reach the upper level of bins, it was necessary to use a long hazardous ladder.

Safe and easy access was achieved by installing a mezzanine made of open metal grating, midway between the ceiling and the floor. The mezzanine is reached via a stairway also made of grating.

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American engineer, in charge of initial work. The contract for final completion was signed in March, 1955. The present project is one part of Peru's efforts to increase its power output and industrial strength.

At the hydroelectric project, Luis Ghiglino is in charge for Santa Corp. About 1,500 workers are on the job.

Brazilian Dam

Project will make river important inland waterway

After five years of planning, work has finally begun on the $135-million Tres Marias Dam on the Sao Francisco River in Brazil.

The dam will be built near the mouth of Rio Borachudo where it pours into the Sao Francisco due north of the mining town of Belo Horizonte. The project is expected to be completed in 8 to 10 years.

Highlights of the project will be a 8,600-ft dam stretching across the Sao Francisco Valley. Only a small portion of the dam will be used for power generation, intake area, spillway and flood control purposes. More than 5,000 ft will be an earth dam over the left side of the river.

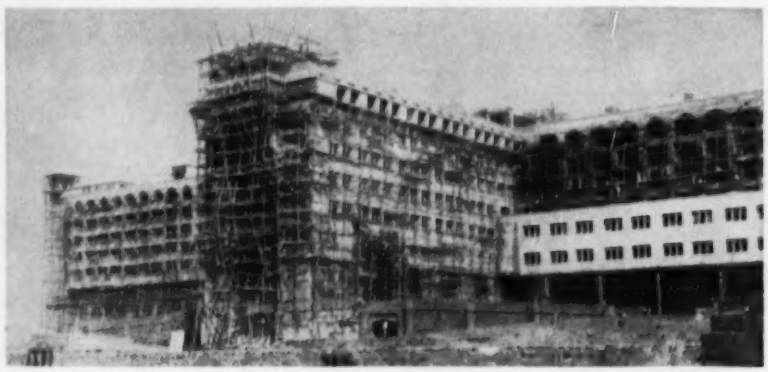
Eventually, Tres Marias will have a generating capacity of 500,000 kw. However, the first stage will only be about 180,000 kw.

The main function of the dam for residents of the area will be to provide the proper flow of water for the navigation of sea-going ships up the river as far as 800 miles.

Proper navigation of the river is expected to give Brazil's interior a boost much like the St. Lawrence Seaway for the U.S. and Canada. The river already has one section developed by the giant power project at Paulo Afonso. Tres Marias, when completed will raise Paulo Afonso's ultimate capacity, originally set at 540,000 kw (not completed), to 900,000 kw because of proper flood control.

The dam at Tres Marias will be 230 ft high and will have a 93-mi-long reservoir area. Power produced by the dam's generators is expected to serve a 144-sq-mi area in the center of a wealthy iron and bauxite district. Storage capacity will be almost 800 million cu ft.

The project is being run by the Commissao do Vale de Sao Francisco (who built Paulo Afonso) with some technical and financial help coming from Cia. Eletricas Minas Gerias, a state-run power company. So far, an airfield, access road, and some transmission lines have been built for working facilities, and preliminary work on the dam has just gotten under way.



New Delhi Readies Hotel For UN Body

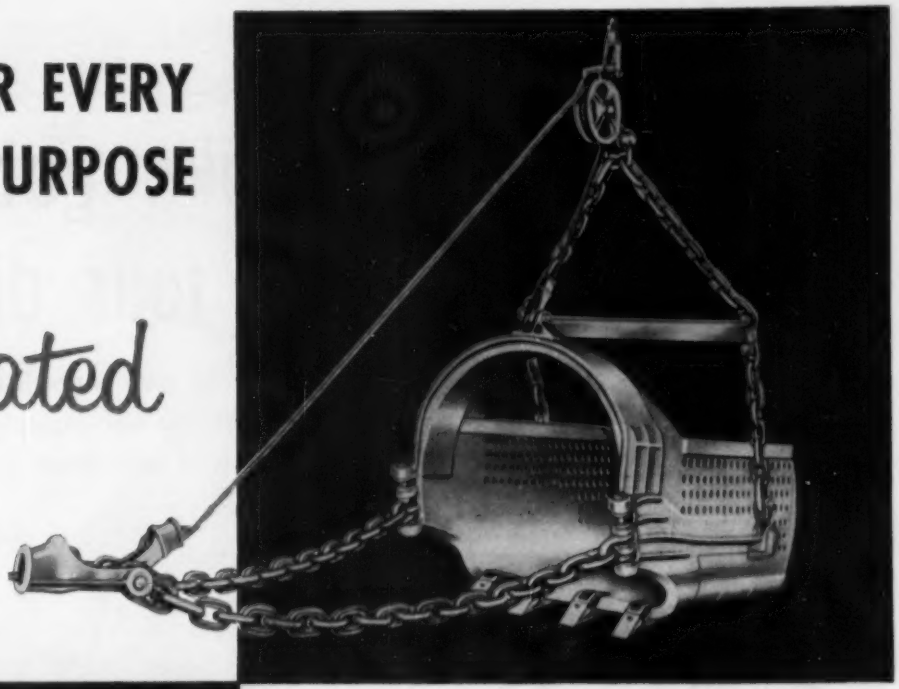
The Indian government's $4.2-million Ashoka Hotel in New Delhi is almost ready to receive delegates to the coming conference of the United Nations Educational, Scientific and Cultural Organization. Under construction by a work force of 2,500 since early last year, the 8-story, reinforced-concrete hotel will be opened for the conference, then finished. Scheduled completion date is March, 1957.

With 600,000 sq ft of floor space, the Ashoka is said to be Southeast Asia's biggest air-conditioned building. It has 300 guest rooms and suites, plus conference halls, banquet rooms, a swimming pool and other service accommodations. It also has its own electric substation, linked to the grid of the Bhakra-Nangal River Valley hydroelectric development (ENR Mar. 1, 1951, p. 33).

Occupying a 22-acre site overlooking the Indian capital's diplomatic enclave, the Ashoka (after an Indian emperor of the third century B. C.) has a main section 600 ft long. Exterior of the building is sandstone.

A TYPE FOR EVERY DIGGING PURPOSE

Perforated



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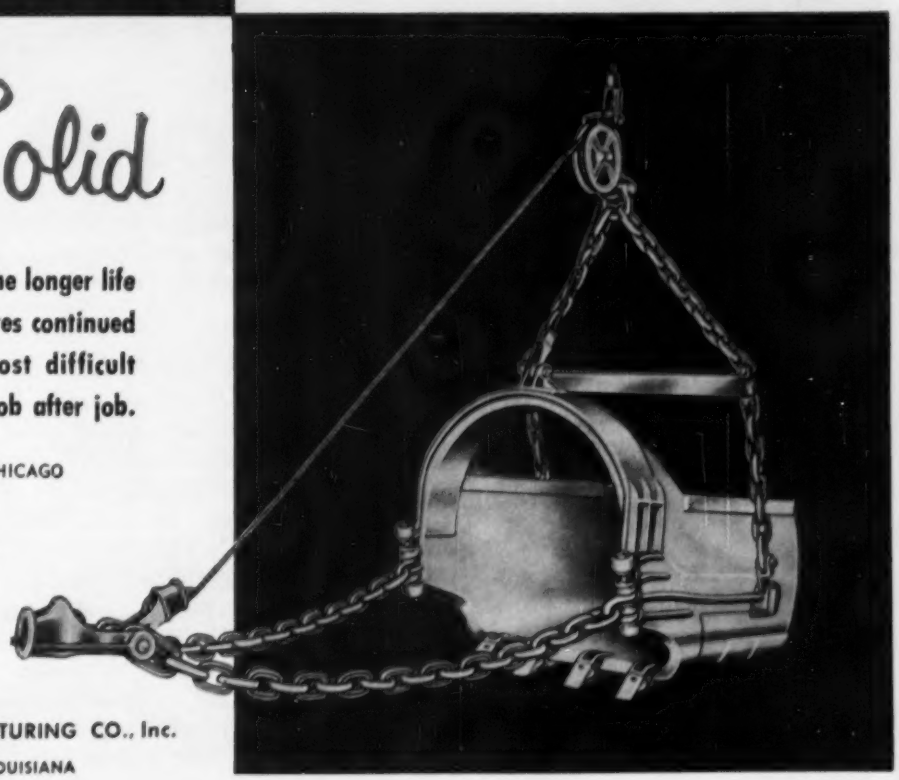

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Hendrix Lightweight Dragline Buckets

HENDRIX MANUFACTURING CO., Inc.
MANSFIELD, LOUISIANA

Pennsylvania Turnpike gets ready to head in four directions

The veteran east-west turnpike gets a north-south extension. Look how construction techniques and equipment have improved since the original highway was completed.

Six DW21s and PR21s help Badgett Mine Stripping Corp. move 5,000,000 yards. Averaging two trips an hour over a round-trip haul of 3 miles, these units averaged loads of 16 yards. Says the foreman, ". . . the best machine of its kind."

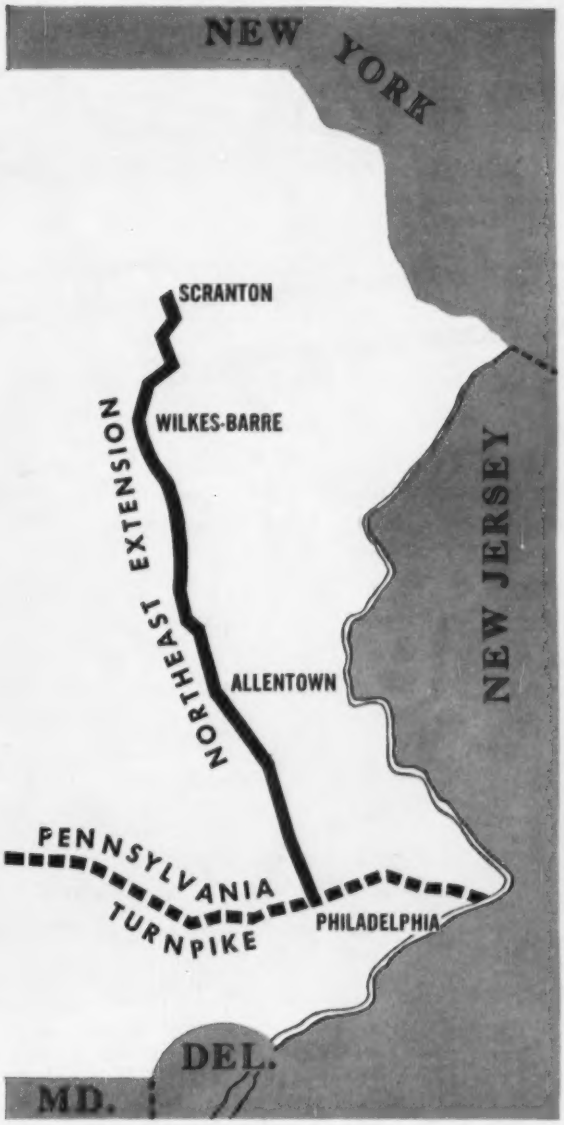
The Pennsylvania Turnpike, granddaddy of all the nation's super-toll roads, is getting a north-south link.

Called the Northeast Extension, the $196 million superhighway will roll 110 miles—connecting Scranton to the east-west portion of the Turnpike near Philadelphia. Terrain ranges from flat farmland and timber tracts to the rugged, rocky Pocono Mountains and abandoned anthracite diggings. It crosses 4 rivers and 16 streams. Contractors are building 133 bridges, 142 culverts and punching a 4300-foot tunnel through a mountain. When completed the road will have consumed 70,000 tons of steel, 4 million tons of stone and sand, 714,207 tons of fine aggregate, and 1,782,526 tons of coarse aggregate. No grade will exceed 3%.

The road will make use of a new idea in medial strips. Traffic will flow on both sides of a 4-foot-wide concrete separation, 8 inches high. This is expected to provide increased safety and save construction costs.

Money is being saved, too, by the fleets of Caterpillar equipment at work—machines with work capacities unknown when the original Turnpike was built. Says P. C. McGee, superintendent for Central Pennsylvania Quarry, Stripping and Construction Co., which is moving 2,750,000 yards on 10.04 miles:

"I used to be an operator and I feel that Caterpillar makes the best road equipment you can buy. Since I have become a superintendent, I am more cost conscious. Now I know that CAT* machines give you



Northeast Extension runs from the Philadelphia area to Scranton across the rugged Pocono Mountains. It requires, among other things, a 4300-foot tunnel.

No. 12 Motor Grader (above) and D8 (below) team up for Central Pennsylvania Construction Co. on a 97-foot fill. In rocky going, they spread and graded a 150 foot x 80 foot area per hour.

more work for the money than other road equipment."

Central Pennsylvania's big yellow fleet includes D7s, D8s and No. 12 Motor Graders. Since the original Pennsylvania Turnpike mileage was built, the D8 has had its production increased with improvements like these: a new 191 HP Diesel Engine . . . torque converter . . . the exclusive Caterpillar oil clutch. And the No. 12 now packs 115 HP, faster reverse speeds, tubeless tires, and the new oil clutch.

On another part of the Northeast Extension, Badgett Mine Stripping Corp., Madisonville, Ky., is moving 5,000,000 yards on a 6.91-mile stretch. Its Caterpillar fleet includes 6 DW21s with Athey PR21 Wagons. Neither unit existed when the original Turnpike was built. Today, the DW21, powered by a Cat Turbocharged Diesel with a maximum output of 300 HP, can develop rimpulls ranging to 38,240 pounds. The PR21, teamed with a DW21, can carry up to 22.5 cubic yards, make 90-degree turns to either side.

Reports Roy N. Holley, grade foreman: "They keep on working when other haul units break down. That's why they haul more dirt. And they let us operate faster in tight spots."

The Northeast Extension illustrates clearly the giant strides made by the construction industry and its Caterpillar equipment in a few short years.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

*Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

Giant Wrought Iron intake-discharge lines carry Mississippi River water to the Bayou Lafourche

There are plenty of service life hazards confronting these water lines. From the pumping station at Donaldsonville, La., to the Bayou Lafourche head waters, these lines dip into the ground for long stretches, run under highways and gravelled streets. And all along the way, they transport Mississippi River water.

Small wonder, then, that the engineers of the Department of Public Works, State of Louisiana, took special care in selecting a material that would provide maximum durability.

This thorough investigation of the hazards, plus the desire to eliminate the additional costs of special protective coatings and wrappings, led to the use of wrought iron plate. More than 394 tons of this time-tested material was fabricated into 60-inch and 48-inch lines for intake and discharge line service.

Some of the intake lines were floated to the site of the installation from the shipyard of Avondale Marine Ways, Inc. The discharge lines, welded by Cal-Metal Pipe Corp. of Louisiana, were delivered by truck and pole trailer.

Write for our bulletin, *Wrought Iron for Underground Services.*

A. M. Byers Company, Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Atlanta, Chicago, St. Louis, Houston, San Francisco. International Division: New York, N. Y.

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Rapid Recording Output For Electronic Computers

Development of an improved phototube method of recording output data from electronic computers has been announced by Stromberg-Carlson.

The heart of so-called Charactron Computer Readout Model 100 is a 7-in. tube that reproduces letters and numbers 6,500 at a time, three times in two seconds. The face of the tube is positioned so that the letters and numbers can be photographed and thus recorded by a special 35-mm camera.

To use the data, the 35-mm film may either be projected on a screen developed into positive prints by conventional means.

The Model 100 assembly includes the tube itself, electronic circuitry which receives instructions from the computer, a high-voltage supply, digital-to-analog converters and a camera recorder. The first assembly has been shipped to Johns Hopkins University in Baltimore. STROMBERG-CARLSON DIV., GENERAL DYNAMICS CORP., ROCHESTER 3, N. Y.

New Process Cuts Cost Of Full-Threaded Nails

Threaded nails manufactured by a new Canadian process cost less than standard straight-shank nails, according to Jones & Laughlin Steel Corp., licensee for production and sale of the product in the U. S. Tradename of the nails is Ardox Spiral.

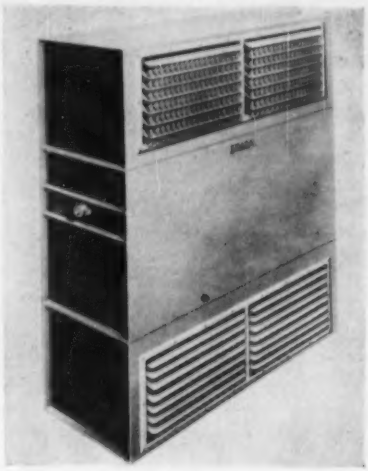
Although the cost per pound is higher, the number of nails per pound is greater because the screw-nail shank has a smaller cross-section area than corresponding straight shanks. Made from pre-threaded wire, the nails are threaded along the entire shank. The apex of the thread is slightly rounded, a feature said to reduce the likelihood of splitting wood. JONES & LAUGHLIN STEEL CORP., 3 GATEWAY CENTER, PITTSBURGH 30, PA.

Cross-Bore Lock Series Has "Custom-Design" Plan

The SentryLock is a cross-bore lock designed for medium construction and residential fields. Conforming with Federal Specifications, Series 160, it may be used with any standard metal door cut-out for that series.

Choice of knobs includes plain, cylinder, push-button, turn-button, coin slot button and emergency. A half-inch latch bolt projection makes for positive latching.

A feature of the lock series is "custom-design" plan which permits different combinations of locks and roses—in all, 75 different designs are possible, including several 5-in. backset type. Screwless roses are held in place by threaded bushings that engage the threaded ends of an aligning tube. Retaining springs in the knob shanks snap into grooves, and wobble is eliminated, according to the manufacturer. SARGENT & COMPANY, NEW HAVEN, CONN.



Trane Adds New Line of Heating, Ventilating Units

Models included in Trane's new Torrivent line of heating and ventilating units range from a basic model supplying untempered makeup air to a deluxe combination that heats, ventilates and humidifies. Varied size and arrangement of coils provides a wide selection of final temperatures applicable in both comfort and process systems.

Air-delivery capacities range from 1,150 to 36,000 cfm. Filters are either throwaway or permanent type, all available for low, intermediate or high-velocity airflow. THE TRANE CO., LA CROSSE, WIS.

Lead Holder Holds Fast Has Self-Cleaning Clutch

A lead holder for draftsmen, designers and engineers is claimed to offer positive protection against lead slippage and turning. The Damascus has a self-cleaning clutch that the manufacturer claims eliminates build-up and clogging from graphite particles and holds the lead in an immovable grip. RICHARD BEST PENCIL CO., SPRINGFIELD, N. J.

Sheating Panel Is Wood and Paper Sandwich

Sheathing panels consisting of low-grade lumber sandwiched between layers of Kraft paper are now in production under the name Sheet-Board. Developed by Western Pine Association, the product is being manufactured at Boise-Payette Lumber Co., Emmett, Idaho, by a machine that produces a continuous ribbon 8 ft wide and ¾ in. thick. The ribbon is cut every 2 ft to provide easy-to-handle 8x2-ft sheets.

Western Pine's research chief, says that the panel, "without diagonal bracing, will provide as strong a wall as anything now in use." Material is cited as moisture-resistant but vapor-permeable. It is coated with resin and bonded to the wood core under pressure.

Available for the time being on a limited basis, Sheet-Board is being sold through retail lumber yards at $125 and $130 per thousand sq ft. Federal Housing Administration approval has been requested. WESTERN PINE ASSOCIATION, PORTLAND, ORE.

Electronic Potentiometer Records on Three-Inch Chart

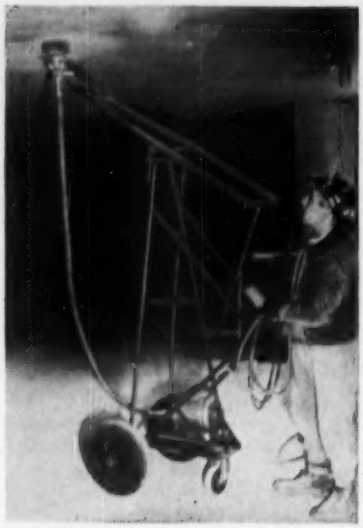
A self-balancing electronic potentiometer which gives a continuous record on a 3-in. strip-chart has been announced by The Bristol Company.

The new recorder is housed in a case only 5 in. square. Accuracy and sensitivity are unchanged from the standard 12-in. pneumatic recorder. The small-size instruments are furnished in indicating models also.

Offered in either potentiometer or ac bridge models, the new instruments can be used to measure any variable which can be converted into an electrical quantity, such as temperature, pressure, flow speed, pH, smoke density and resistance. BRISTOL CO., WATERBURY 20, CONN.

(*New Products continued on page 62*)

RUBBING CEILINGS?



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Heights up to 24 ft.

Has been adapted to cleaning ceilings.

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Ray-Screening Window Panes Work Like Suntan Oil

A window made of plastic-reinforced glass fibers has special ingredients that filter sunlight like a suntan oil. For use where ultraviolet light is unwanted—rubber tire warehouses for one—the company engineers claim that the molded panes permit up to 50% of visible light to pass while keeping out the ultraviolet rays.

The 14x20-in. panes are made by placing glass-fiber sheets in a mold, adding a compound of polyester resin, color pigments and other ingredients, closing the mold and then baking the panes.

Installed by usual glazier methods, the panes are claimed to be almost unbreakable, easy to clean, resistant to chemicals, smoke and smog. Reinforced Plastics Div., Firestone Tire & Rubber Co., Akron, Ohio.

Prefab Curtain Walls Have Expansible Mullions

A line of aluminum curtail-wall components announced by Newman Bros. features expansible mullions that can accommodate wall panels from 1½ to 3 in. in thickness. Panels may be aluminum, painted steel or porcelain enamel.

The selection of finishes available for extruded aluminum members includes mill, satin or anodized color. Windows of any make may be specified by the architect for use with the wall system. All components in the line, called Custom-Line are sealed with neoprene gaskets.

A companion product called Modu-Line is similar in most respects, but panel thickness is limited to 2 in. Newman Bros., Inc., 670 W. 4th St., Cincinnati, Ohio.

Foamed Plastic Insulation Comes in Flexible Sheets

Flexible foamed plastic sheet insulation that adapts itself to curved or irregular surfaces with little or no fitting or cutting has been announced by Armstrong Cork. Called Armaflex, the product is said to be particularly adaptable to insulating large tanks, irregularly shaped vessels, oversize pipes and refrigeration and air-conditioning equipment.

According to the manufacturer, Armaflex will withstand temperatures as high as 160 F. It has a heat transmission factor k of 0.28 Btu-in. per hr-deg F-sq ft at 75 F mean temperature, and a water vapor permeability of 0.1 perm.

Sheets 30x36 in. in area are supplied in ⅛, ¼, ½ and ¾-in. thicknesses. They can be applied to almost any clean dry surface with an adhesive sold by Armstrong. No other mechanical support is required. Armstrong Cork Co., Lancaster, Pa.

Portable Electric Saw Operates on Both AC and DC

A portable 7¼-in. electric saw, driven by a 1¾-hp motor, uses either ac or dc current. The No. 475 cuts to a maximum depth of 2⅞ in. and a minimum of ⅛ in. When set to cut at a 45-deg angle, maximum depth of cut is 1¾ in. Arbor is ⅝ in. round.

An automatic telescoping guard, heavy-duty protractor for positive and accurate angle cuts, cutting guide notch and a rip guide are some of the features of the saw.

Gears are helical-cut alloy steel and sealed in grease. Housing is aluminum alloy giving the saw an overall weight of 14½ lb. Air is drawn through the motor to cool it, and a sawdust blower keeps cut-lines clear. Thor Power Tool Co., Aurora, Ill.

Precast Wall Panels Are Perlite Concrete and Steel

Wall panels introduced under the name Tecfab are made of perlite concrete and steel. The panels are cast in a steel frame and reinforced with an embedded core of corrugated steel.

The surface intended for the outside of a building is exposed aggregate. It can be sheathed, however, with metal or other material. Inside is a smooth white surface that can be left as is or painted. Tecfab, Inc., Beltsville, Md.

Camera and Flash Gun Styled for "Note Taking"

Architectural "note taking" is the job envisioned by Eastman for its Kodak Signet 40, a 35-mm camera and flash holder styled as an integrated unit. Exposure guides are right on the unit. Rangefinder and viewfinder are combined in a single window. Film threading has been eliminated. After the end of the film is dropped into the take-up drum, it is ready for winding. The thumb-action winding lever advances and automatically stops the film, counts the exposures and guards against double exposures. The camera is equipped with a release lever, however, for use when double exposure is wanted. Camera, flash gun and two interchangeable reflectors (3 in. and 4 in.) cost $65. A leather field case costs $8.50. Eastman Kodak Co., Rochester 4, N. Y.

(*New Products continued on page 62*)

Switch to extra-tough AMSCO® MANGANESE STEEL TRACTOR SHOES

When the going is extra tough, as in rocky areas or abrasive mineral soils . . . tractor shoe replacement can become a major cost item. Both repair time and down time eat up profits.

Switch to "the toughest steel known" . . . Amsco Manganese Steel . . . for tracks and grouser bars. Check their much longer service life against the moderate extra cost. Add to this the greater efficiency and pulling power of your tractor, over a longer period of time. The answer: *important operating economies.*

Amsco Manganese Steel gives excellent resistance to abrasion accompanied by impact . . . actually *work-hardens* in use. Write for full information on long-wearing Amsco Manganese Steel Tractor Shoes—the economical answer to high track-replacement costs.

COUNTER-SUNK BOLT HOLES

Amsco Track Shoes have holes countersunk for less wear on bolts. Saves cost of replacing bolts when changing shoes.

AMERICAN Brake Shoe COMPANY

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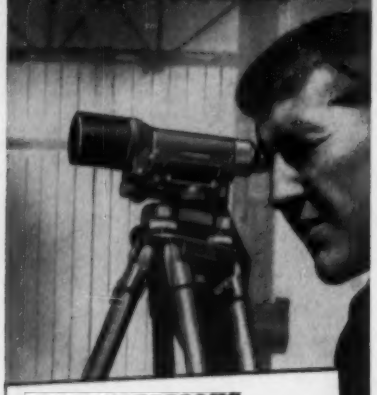

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precision surveying instruments... compact, rugged construction... fast, effortless operation. More reliable results in less time.

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precise level
in use at Gloucester Anchorage of new Walt Whitman Bridge being constructed over Delaware River. (Modjeski & Masters, Consulting Engineers)

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PRECISION LEVELING

- Functional, down-to-fundamentals design—only 4½ lbs. (6 lbs. with carrying case).
- Coincidence level and fine tilt screw.
- Readings at a glance—level and rod may be read simultaneously through 30x Telescope.
- Mean leveling accuracy under normal conditions ± .006 ft. per mile.
- Kern AR coated optics produce substantial increase in brilliance and contrast of image.

Write for Brochure ***NK 527-1***

PROMPT, RELIABLE SERVICE
FACTORY TRAINED PERSONNEL

Kern and Only Kern Offers You the Latest Designs of Dr. Henry Wild

Kern SWISS
The FINEST in SURVEYING EQUIPMENT
KERN INSTRUMENTS INC.
120 Grand St., White Plains, N.Y.

Tractor-Shovel Utility-Boom Reaches Second-Story Heights

A long boom that handles building materials up to the second floor has been developed, by the Henry Mfg. Co, and is available for use with most Henry industrial tractor shovels.

The manufacturer claims that the boom can lift 170 bricks, 32 concrete blocks, or a loaded wheelbarrow to any point as high as 20 ft, quickly and smoothly. It comes equipped with a swivel hook with clevis, and attachments include a material form and a concrete and mortar hopper with ¼-cu-yd capacity. HENRY MFG. CO., 1700 N. CLAY ST., TOPEKA, KAN.

Rock Body Is Designed To Withstand Loading Shocks

A new rock body for trucks, said to be designed to withstand the severe impact shocks imposed by power shovel, chute and conveyor loading, has been announced by the Galion.

Offered in 6- to 15-cu-yd capacities, the bodies feature ¼-in. steel-plate construction in sides, floor and head. For especially severe service, ⅜- or ½-in. body shells and wear plates are available. Horizontal and vertical box braces extending up under the top roll bolster side strength and prevent bulging, the most common cause of rock body failure, the manufacturer explains. GALION ALLSTEEL BODY CO., GALION, OHIO.

Diamond Blades for Sawing Cured or Green Concrete

Four new concrete-cutting diamond blades have been developed by Clipper Manufacturing. Two 1.8-in. wide with a ⅛-in. diamond depth, are for sawing old concrete. The other two, ⅛-in. wide with a ⅛-in. diamond depth, are recommended for sawing green concrete. One blade of each pair is for medium-to-hard aggregates, the other for softer aggregates. CLIPPER MFG. CO., SUITE 642, 2800 WARWICK, KANSAS CITY, MO.

Filter Capacity Increased

With 12 segments per disk instead of the usual 10, Denver Equipment's new 9-ft diameter disk filter has 105 sq ft of filter area per disk.

The manufacturer states that the additional disks give a greater filter capacity because more complete segments are under vacuum each revolution.

A patented filter design provides gravity drainage prior to discharge and results, says the manufacturer, in a drier filter cake. DENVER EQUIPMENT CO., 1400 17TH ST., DENVER, COL.

Publications

Movie on mapping—"Portrait of the Earth" is a 23½-min, color-sound 16mm film on aerial photography, photogrammetric methods, mapping procedures and airborne geophysics. Film covers high and low altitude aerial photography procedure, aerial cameras, the use of Kelsh, Multilex and Wild equipment, indexing and general mapping methods. Give several alternate dates for showing and the film will be made available at no charge. HYCON AERIAL SURVEYS, BIN T, PASADENA, CALIF.

Sewage treatment—A 12-page booklet describes how a catalytic reduction process allows the usage of smaller tanks for biological digestion of sludge. Advantages, applications, operating principle, and specifications are fully described. Bulletin 145, CHICAGO PUMP CO., 622 DIVERSEY PARKWAY, CHICAGO 14, ILL.

Crushers—Now available is a brochure on the "Comanche", a new portable dual crushing plant with a range of four sizes. Details and specifications are included. LIPPMANN ENGINEERING WORKS, INC., 4603 W. MITCHELL ST., MILWAUKEE 14, WIS.

Air applications—Four new tractor case histories are included in the latest brochure now available. This brings to eight the number of case histories recently published on the combination Tractair-air compressor. WESTINGHOUSE AIR BRAKE CO., MILWAUKEE, WIS.

Trucks—New literature describing the functional advantages of the White 3000 Util-I-Deck truck has been released. The special body has been developed for handling structural beams, steel fabrications, telephone poles, and large diameter tubing. SALES PROMOTION DEPT., THE WHITE MOTOR CO., CLEVELAND 1, OHIO.

Curtain walls—Unit Wall, an exterior curtain wall system made up of 10 standard modular components, is described in a brochure designed for architects, engineers and builders. KAWNEER CO., NILES, MICH.

Aerator-clarifiers—Complete treatment by aerator-clarifier units for small compact activated sludge treatment plants handling up to 500,000 gpd is the topic of a 15-page booklet published by Chicago Pump Company. Full description of the units, their operation, advantages, and specifications is contained in the publication. Bulletin 129, CHICAGO PUMP CO., 622 DIVERSEY PARKWAY, CHICAGO 14, ILL.

Here's a trench digger, backfiller, and compactor in one neat package, on a New Jersey water-company job. Truck arrangement provides transportation for men and tools. Compact 25 by 82 in. Le Roi 105 Utility compressor powers Le Roi-Cleveland breakers and tampers. Le Roi-Cleveland triple tamper in foreground features adjustable-height handle bar for greatest operating ease. It can replace five single tampers. Most important, when tamping, it stays close to the ground, making dangerous high lifts unnecessary.

Work-Saving Air-Tool Applications

by LE ROI

Highway construction in Mexico is frequently for the birds, or literally could be as this picture indicates. Two operators pictured on this treacherous perch rely on easy-handling Le Roi-Cleveland sinkers, as do 38 others on job. To complicate the fatigue problem, this area around Chilpancingo is often subject to extreme heat. Sealed dust-proof feature is one reason why these tools produce the powerful, constant rotation needed for fast drilling.

On this $1,600,000 Cleveland sewer job, Le Roi-Cleveland clay diggers set a daily 20-ft. pace. The C-10 clay spade was chosen because a great deal of handling and lifting were required. Operators appreciated a well-balanced tool for this rush job. The spade also is free from bumps, so that operators can get a firm grip and still work close to tunnel walls.

Gas company employee breaks through tough 12-in. concrete. To speed emergency repair work, this utility chose the maximum shattering impact of a Le Roi-Cleveland 52 paving breaker. Work speed, however, was only one consideration. Low-cost operation was important too. The 52's piston air-cushion reduces internal part wear, makes handling easier.

LE ROI Division of Westinghouse Air Brake Co., Milwaukee 1, Wisconsin, manufacturers of Cleveland air tools, Tractair, portable and stationary air compressors, and heavy-duty industrial engines. Write us for information on any of these products.

No winter-weather slow-ups

. . . when you build with Milcor Celluflor, the modern steel sub-floor that speeds construction

architects
Larson & McLaren, Minneapolis, Minn.

consulting architects (exterior design)
Holabird, Root & Burgee, Chicago, Ill.

architect for original structure
Cass Gilbert, St. Paul, Minn.

consulting engineers
Schukett-Meier Co. Minneapolis, Minn.

general contractors
Naugle-Leck, Inc., Minneapolis, Minn.

The 8-story addition to the Federal Reserve Bank Building in Minneapolis was erected during a cold Minnesota winter. But erection of the floor moved right along, in spite of freezing temperatures.

The structural steel contractor planned it that way. He erected Celluflor without waiting for the weather.

He also saved the time and expense of timber safety staging — and eliminated the danger of fire from salamanders. That's because Celluflor itself — once erected—does double duty as (a) working platform for pipe-fitters, masons, plasterers, electricians, sheet metal men, other trades; (b) a storage area for tools and materials.

In addition to its obvious erection advantages to the contractor, Celluflor provides long-range functional utility for occupants. The celluflor sub-floor offers clean, dry raceways for present and future electrical and communications lines, with outlets available anywhere on the floor.

Catalog No. 270 is available upon request.

MILCOR® Celluflor

Sketch of Celluflor installation in Federal Reserve Bank Building (T=Telephone; P=Power; F=Future)

Milcor Celluflor cells, spaced on 6-inch centers, permit the installation of service outlets at any point on the floor.

INLAND

INLAND STEEL PRODUCTS COMPANY
4147K W. BURNHAM STREET • MILWAUKEE 1, WISCONSIN
BALTIMORE • BUFFALO • CHICAGO • CINCINNATI • CLEVELAND
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MINNEAPOLIS • NEW YORK • ST. LOUIS M-172A

Men and Jobs

District Engineer Changes For Corps of Engineers

Col. Thomas D. Rogers, District Engineer at Savannah, Ga., since 1954, will become District Engineer at New York City in December, succeeding Col. John T. O'Neill who is being transferred to the Far East.

Col. Robert C. Bahr, staff engineer with the Atlantic Transportation Terminal Command in New York, will take over Colonel Rogers vacated post.

A native of Minnesota, Colonel Rogers has served with the Corps for 22 years at posts throughout the U. S. and overseas. During World War II he saw service in both European and North African theaters of operations.

Colonel Bahr, born in Peoria, Ill., was originally commissioned in the field artillery where he served for 13 years before transferring to the Corps in 1947.

Bahr and Rogers were in the 1934 graduating class at the United States Military Academy at West Point.

Colonel O'Neill, a native of Washington, D. C., is a graduate of the University of Maryland, class of 1931, and before his entry into service in 1941 was employed as a civil engineer with the Army. During the war he served with an engineering task force in Europe.

Prichard Is Vice President Of Oman Construction

Mason C. Prichard has become vice president of the Oman Construction Co., serving in the New York office of the Oman-Farnsworth-Wright joint venture, presently engaged on overseas construction in the Azores, Pakistan, and Spain.

For the last two years, Prichard has been executive vice president of the Foundation Co., New York, as management representative in this concern for the Oman interest, which is now being sold.

Prior to 1954, Prichard served the Corps of Engineers for 26 years both as a civilian and an officer, with the rank of colonel during World War II. He resigned from the post of assistant chief of military construction to join the Oman organization in 1954.

Head office of the Oman Company is in Nashville, Tenn., but Prichard will continue to maintain his family residence in the Washington, D. C., area, which he represents as a director on the board of the American Society of Civil Engineers.

(*Men and Jobs continued on page 69*)

Production Boom Putting on Pressure for Greater Drafting Room Output?

Now IS THE TIME TO ACT *in Behalf of Your Company and Yourself!*

Chances are that your company, like most, is gearing up for greater-than-ever production. That means more and more pressure on your drafting department for engineering drawings and prints. You owe it to your company and yourself to equip your department, right now, to meet growing demands with greater output!

New, higher-production equipment and materials can help you do it! Never has there been a better opportunity to replace old, inadequate equipment with the efficient new products you've been wanting. With management's desire for greater production, you couldn't pick a better time to get approval for new equipment expenditures.

BRUNING

To discover for yourself how many ways you can boost drafting room output, yet save time and manpower, take a minute to look over the next three pages. You'll be glad you did!

Look How Many Ways You Save Time and Money With

Check the Places in Your Drafting Room Where Production Bottlenecks Can be Eliminated by Modern Bruning Products!

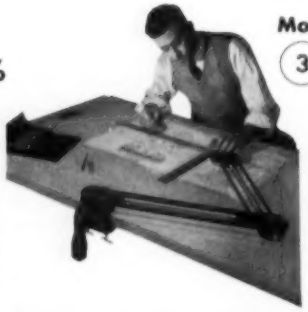
(1) Modern Copyflex Machines Speed Reproduction, Cut Operating Costs

Five new and advanced machine models introduced in just the last year! They offer you all the benefits of diazo black-on-white reproduction, plus problem-free installation and operation. No fumes, no exhaust ducts. They bring you faster reproduction speed and a host of operator conveniences such as fast return of originals, automatic separation, front or rear delivery. There's a Copyflex model to meet every need. New, better Copyflex sensitized materials work together with Copyflex machines to give you premium results.

JUST OUT! New Tabletop Model 300 with 30-inch printing width! Now the smallest engineering department can afford the advantages of "inside" reproduction with low-cost Model 300. The largest company can economically supplement its reproduction center with additional, strategically located Model 300s.

(2) Modern Bruning Drafters Speed Drafting up to 30%

Over conventional equipment, Bruning drafters speed drafting up to 30% on most jobs . . . up to 40% on some structural drawings. Patented "Equipoise" gravity compensator, exclusive touch control indexing provide unrivalled simplicity, precision, and ease of operation. Full range of models including Counterbalanced and Track Drafters. Standard or Civil Engineer protractor heads.



Modern Bruning Tracing Mediums (3) Speed Drawings, Enable Sharper Prints

These improved drawing mediums are unsurpassed for translucency, pencil-and-ink taking qualities, and permanence. You make drawings and tracings far easier and faster, get cleaner and sharper prints. Select from a complete variety.

Can Boost Drafting Room Output, New, Modern Bruning Products!

Why Let Old and Inadequate Equipment and Materials Stall Operations Now, When More and More Output Is Demanded of Your Department? Every Day You Delay Is Costing You Time and Money!

Here are the modern, higher-production products—some the newest on the market—that can help you boost drafting room output by replacing old and inadequate equipment and materials. A pioneer researcher in its field, Bruning still leads the way today with such developments as newly improved tracing papers and cloths that are setting a new standard in their field . . . newly improved sensitized materials that give you quality reproduction never before attainable . . . new, improved Copyflex machines that set a new high in quality, convenience, and economy of reproduction.

Researcher, manufacturer, and supplier . . . Bruning provides you a single, convenient, dependable source for everything you need in top-quality drafting room supplies and service. You simplify ordering and stocking, save time and money. Companion products, like Copyflex reproduction machines and Copyflex sensitized materials, are made to work together to give you premium results.

4 Modern Hamilton Drafting Tables Provide up to 50% More Use of Floor Space

You can put six Hamilton Auto-Shift tables where you now have four boards with separate reference desks. The unique design of Auto-Shift increases the efficiency of draftsmen, reduces waste motion and fatigue. Bruning has a modern drafting table to suit every need and budget.

5 Modern Hamilton UnitSystem Files Save Time, Space; Permit Orderly Expansion

You choose the individual filing units you need and combine them in an integrated and interlocking stack. You save time because drawings are easier to file and find. You make the most efficient use of space, expand your filing set-up in an orderly fashion.

More Products from Bruning to Help You Step up Production, Save Time and Money!

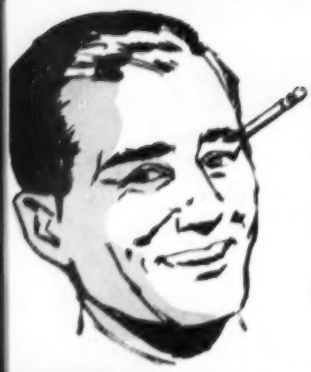
Modern Drafting Tools and Supplies Help Speed Draftsmen's Work

Bruning's wide selection includes not only standard items, but many special time-saving aids such as dotting pens, proportional dividers, planimeters, and Wrico lettering sets.

Modern Bruning Erasing Machines Save Hours of Manual Erasing

Do a neater, safer erasing job. Save hours of finger-cramping manual erasing. Patented hollow shaft permits use of extra-long, seven-inch eraser, prevents "fly-outs." Quiet, cool, vibration-free.

BRUNING *Gives You More to Help Boost Output*



3 More Reasons

Why You Can Depend on Bruning to Help You Boost Drafting Room Output, Save Time and Money!

New and Better Products
—from Bruning Research and Engineering

In the past, it was Bruning Research and Engineering that introduced the first pencil tracing cloths, the first fume-free whiteprinters in America, the first band-type drafting machines. Today, by virtue of its modern laboratories and large engineering staffs, Bruning still leads the way in the development of new and better products. In just the past year, Bruning introduced five new, advanced reproduction machines . . . many newly improved tracing materials.

Consistently High Quality
—from Bruning Manufacturing

In its own modern paper converting plants at Teterboro, N. J., Chicago, Kansas City, Los Angeles, and Toronto, Ontario, Bruning controls quality all the way to bring you tracing mediums and sensitized materials of dependable, consistent high quality. The famous Copyflex reproduction machines are entirely Bruning manufactured to provide you the finest in reproduction performance.

The Product and Help You Need When You Need Them—from Bruning Sales Service

With the most comprehensive network of sales-service branches, distributors, and plants in its field, Bruning assures you of prompt, dependable service and supply. Your nearby Bruning branch is headquarters for a capable staff of Bruning sales-service specialists who are immediately available to you. Your nearby Bruning branch or distributor carries a full line of Bruning products and is staffed and equipped to give you fast, efficient supply. You suffer no costly delays for lack of supply or service.

America's Leading Supplier of
Engineering and Drafting Equipment

BRUNING

There you have it—the "big package" from Bruning to help you meet the demand for greater drafting room output! You get a complete line of modern, high quality products! You get better service. They work together to bring you better results at lower cost.

Charles Bruning Company, Incorporated
4700 Montrose Avenue, Chicago 41, Illinois
In Canada: Charles Bruning Company (Canada) Ltd.
105 Church Street, Toronto 1, Ont.

Printed in U.S.A.

Dallas Consulting Engineer Sets Up Lectureship Fund

Dean E. H. Flath announced recently that the School of Engineering at Southern Methodist University had completed plans to establish the Forrest Lectures, made possible through a gift from T. Carr Forrest, Dallas (Tex.) consulting engineer and former president of the National Society of Professional Engineers.

The lectures are to be used for the promotion of professional understanding and achievement among student engineers of the Dallas metropolitan area, as well as management that uses engineers.

The purpose of the Forrest Lectureship, Dean Flath explained, is to better equip the young engineer with the tools of his profession which cannot be obtained from the textbook.

The SMU officials and Forrest have arranged for the lectureship to be held during the annual Engineers Week at the school each spring. The lectures will be open to the general public.

Men and Jobs Briefs . . .

• **Associations**—The North Carolina section of the American Society of Civil Engineers elects as president, **James F. Pou** of Charlotte, N. C.

• **Careers**—The Bureau of Public Roads names **Morton Flint** as division engineer for the agency in Alaska. Flint's headquarters will be in Juneau . . . **Frank A. Butrico**, sanitary engineer director and assistant chief, succeeds **Harvey F. Ludwig** as chief of the Office of Engineering Resources, U. S. Public Health Service. Ludwig resigns to accept a position as assistant manager of Hycon Aerial Surveys, at Pasadena, Calif.

William F. Childs, Jr., for seven years chief engineer and for two years advisory engineer to the Maryland State Road Commission, has joined the firm of Whitman, Requardt and Associates of Baltimore, as a consultant on highways.

• **Business**—The consulting engineering firm of Dan E. Sewell and Associates, Savannah, Ga. announces that former Corps of Engineer **Brig. Gen. Paschal N. Strong** (Ret.) joins the firm . . . **Randolph H. Dewante** forms a partnership with **Edwin R. Stowell** under the firm name of Dewante and Stowell, sanitary and civil engineers, in Sacramento, Calif.

• **Awards**—The president of J. A. Jones

new Hallmark Cards "wall of windows" building glazed and sealed with

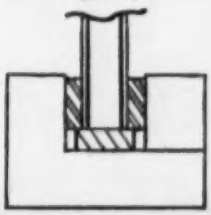
Architect: Welton Becket, Los Angeles, San Francisco, New York

PRESSTITE No. 162 Tape

The structural *design* of this handsome, well-lighted "house of glass" (home of famous Hallmark Cards) called for lots of glazing and sealing. Structural *movement* demanded a permanently elastic sealer that never hardens, chips or slumps.

Presstite No. 162 Tape was used throughout. Windows were glazed on the site (see drawing below). Porcelain panels were similarly sealed at the manufacturer's plant and shipped to the site.

No. 162 Tape remains pliable and adhesive, always assuring a tight, easy-to-apply seal against all kinds of weather . . . and is just one of many Presstite sealing and caulking compounds for window glazing, general caulking, expansion joints and curtain wall construction.

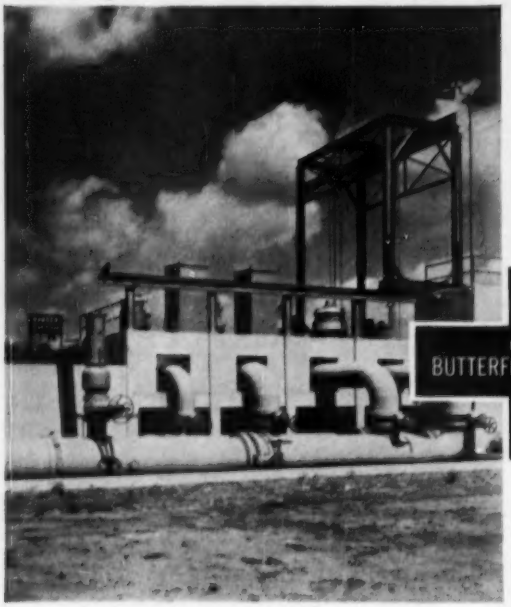


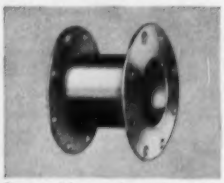
WRITE for working samples, literature, technical data.

PRESSTITE Sealing Compounds — PRESSTITE-KEYSTONE ENGINEERING PRODUCTS COMPANY — K A P

A Division of AMERICAN-MARIETTA COMPANY
3784 CHOUTEAU AVENUE, ST. LOUIS 10, MISSOURI • 101 EAST ONTARIO STREET, CHICAGO 11, ILLINOIS

Use of compact R-S Rubber Seated Butterfly Valves in this common header permitted close coupling of all pipe, resulted in a substantial saving.





Renewable and replaceable rubber seat . . .

R-S BUTTERFLY VALVES

. . . Is installed in valve body . . .

. . . And positions with flanges fitting body flange holes.

FOR DROP-TIGHT SHUT-OFF AND ABRASION RESISTANCE

R-S Rubber-Seated Butterfly Valves give 100% effective shut-off with 125-pound pressure drop. Wedge-type action of the vane against the tough flexible rubber seat gives positive closure even around the shaft bosses. The special composition of rubber and other materials gives long life and resistance to wear caused by the flow of materials.

Use of R-S Butterfly Valves in place of conventional gate valves will give a far more compact piping layout. This can mean substantial savings in the initial building cost. To get full information on the complete line of Butterfly Valves, Ball Valves, and Rotovalves, see our local representative, or write S. Morgan Smith Co., York, Pa.

HYDRAULIC TURBINES · GATES & HOISTS · TRASH RAKES · PUMPS · ACCESSORIES

HYDRODYNAMICS

ROTOVALVES · FREE-DISCHARGE VALVES · BALL VALVES · CONTROLLABLE-PITCH SHIP PROPELLERS · BUTTERFLY VALVES

S. MORGAN SMITH

AFFILIATE: S. MORGAN SMITH, CANADA, LIMITED • TORONTO

Construction Co., **Edwin L. Jones** of Charlotte, N. C. is named winner of Duke University's first College of Engineering Award. Annually, hereafter the award will be made to the alumnus "whose personal life, professional achievements, community service and services to Duke University, exemplifies the objectives of the College of Engineering."

Daniel J. Dougherty, project engineer; **J. Irwin Miller,** president and **James Gordon,** project manager, of the M-B Contracting Co., Inc., recently received a plaque from the Corps of Engineers for beating a difficult time schedule on the $8.9-million runway and taxiway project at Elmendorf Air Force Base. The company was given notice on March 19 to proceed with the work under a schedule calling for more than $6 million of construction to be in place by Nov. 1, 1956. By Sept. 20, a total of 8,500 ft of runway was ready for use.

Retirements—Joseph M. Kane, assistant office engineer of the California State Division of Highways at Sacramento, has retired after 29 years of service with the agency. His work in setting up standards for highway construction is used as a reference by other states and the federal government.

Obituaries

Grosvenor Atterbury, 87, died at Southampton, L. I., Oct. 18. An architect, he was a pioneer in prefabrication when about 40 years ago he designed a special 8x4-ft hollow concrete block to be used for the houses of the Forest Hills Gardens, Queens, N. Y.—a community development for which he was the architect. Mr. Atterbury was also the inventor of the method, apparatus and designs incorporated in the Atterbury mechanized mass production of building units for low-cost housing. Born in Detroit, he attended Yale, Columbia University School of Architecture and Ecole des Beaux Arts in Paris. In the recent post-war period, he served as chairman of the War Industry Housing Commission.

Charles K. Bruce, 68, associate bridge engineer for the Louisville & Nashville Railroad Co., died recently at Louisville, Ky. An employee of the L & N since 1916, Mr. Bruce had designed bridges for the line in the South.

Harold L. Crane, 66, superintendent of maintenance for the Elizabethtown Water Co., died Oct. 18 in Elizabeth, N. J. Mr. Crane joined the water company in 1921.

10 reasons

why Liberty Mutual has been the number 1 writer of compensation insurance for 20 straight years

...and why Liberty can save you real money

1 **On-the-job experience:** Liberty Mutual has solved insurance problems for large and small contractors in every part of the country. Liberty has worked with them on driveways and superhighways, tunnels and towers, ranch houses and skyscrapers. Liberty knows the hazards of construction operations, knows how to help you avoid those hazards and reduce your accident rate. Ask your local Liberty office to show you how they've helped policyholders in your area, and in your field.

2 **Engineering know-how:** When you work with Liberty, you work with a team of Loss Prevention engineers who know your business and talk your language. Through *advance analysis* they help you plan control of potential hazards before each of your projects begins. They follow-through every step of the way, working full-time on the project when necessary. They have perfected techniques for keeping men safe, controlling damage due to blasting, improving operating methods in all types of construction projects.

3 **Saving you money:** Your local Liberty Mutual office can show you an up-to-date list of over 100 contractors whose insurance costs have gone down since they became Liberty policyholders. In one case there was a change of 76% . . . in another, 70% . . . and there was a 50% or better change in the insurance rates of 14 other contractors. Superior loss prevention and claims service is the principal reason Liberty consistently saves money for contractors.

4 **Dividend returns:** In addition to lowering the insurance rates on construction jobs, Liberty Mutual has been able to save additional dollars for its policyholders through dividend returns.

5 **Research:** Liberty Mutual has its own fully-staffed and equipped laboratory in which it studies overall construction safety problems as well as the specific difficulties faced by individual contractors. Out of this have come many ideas for safer operating methods, new and improved techniques to reduce tough problems.

6 **Around the clock claims service:** On large projects, Liberty Mutual has full-time claimsmen right on the job. Experienced, company trained claimsmen assure fast, fair handling of every claim. If there's an accident on your job, there'll be a Liberty claimsman swinging into action fast.

7 **Large medical staff:** Liberty Mutual's unique medical program has drawn praise from medical authorities everywhere. Liberty has its own team of specialists available to check the diagnosis and treatment of all serious injuries. In addition, Liberty has two famous rehabilitation centers where badly injured workers learn to be useful, self-supporting citizens once again. Liberty also assists in setting up "preventive" medical programs for each large project.

8 **Speedy auditing:** Liberty has its own auditors, specialists in the construction field, who provide fast auditing and assure proper allocation of payroll classification.

9 **Direct dealing:** When you're a Liberty policyholder, you deal only with salaried employees of the company. Their interests are yours. No brokers or middlemen. This can save you money, assure you of the best insurance advice.

10 **Ability to follow your operations:** Liberty has branch offices in 146 cities at your service. Get in touch with the office nearest you, and ask just one question: "Can you save me money on my insurance?" If they can — they'll *prove* it to you!

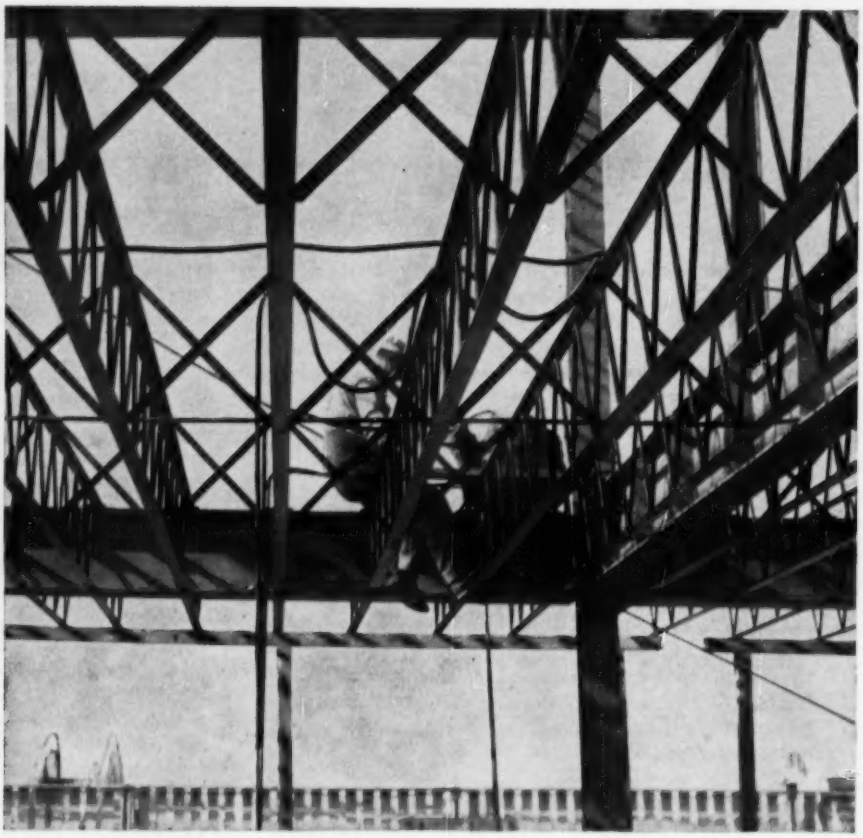
LIBERTY MUTUAL

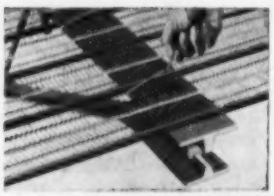
The Company that stands by you

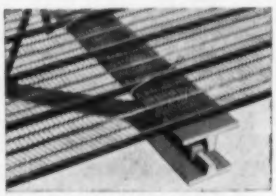
Liberty Mutual Insurance Company • Liberty Mutual Fire Insurance Company • Home Office: Boston.

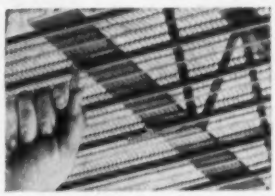
In steel joist construction...

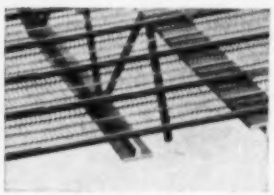
TRUSCON SOLID CHORD











STRONG, FIRE-RESISTANT CONSTRUCTION is provided by attaching Truscon metal lath directly to O-T or Clerespan Steel Joists as a base for plaster. Through the use of special lath clips, permanent fastening to top or bottom chord is easy and quick . . . requires no special tools. When metal lath is used to support concrete top slab and plaster ceiling, a high degree of fire resistance results through the complete absence of combustible materials.

REPUBLIC

REPUBLIC STEEL

World's Widest Range of Standard Steels

DESIGN PROVIDES GREATER LATERAL STRENGTH AND RIGIDITY

Steel joist construction is expanding to greater limits. To meet your requirements, Republic's Truscon® Steel Division offers a complete series of solid, hot rolled, tee-shaped chord members for use in O-T® (Shortspan) Open Truss Steel Joists.

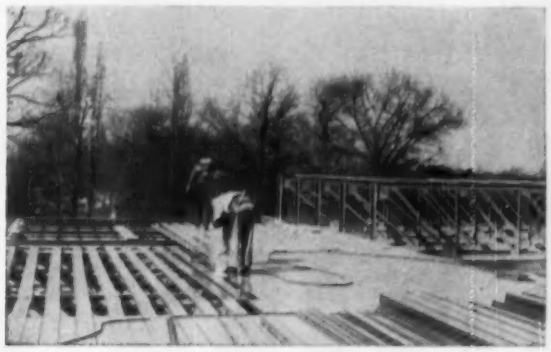
These chord sections are scientifically designed to provide the proper width, depth and strength to match desired span and load. In addition, the greater flange width of these solid members provides both improved lateral stiffness and increased bearing area. Finally, both top and bottom chords are continuous from bearing to bearing, and webs are uniform in diameter. All components are joined by resistance welding to assure uniform strength and rigidity throughout each joist.

The Steel Joist Institute, of which Truscon is a member, has contracted recently with an independent and nationally accredited Inspection Laboratory to perform periodic unscheduled inspections of joist fabrication at each plant of each member company. Inspections will be made for dimensional tolerance, panel spacing, eccentricity of joints and alignment of bearing members. Tests will be made to determine the quality of steel. Adding to this, the established advantages of the Truscon Institute-approved steel joists, you are doubly assured of steel joist construction that will meet every conceivable requirement.

Floors of steel joist construction can be made fire, vermin and sound resistant through proper application of a reinforced concrete slab floor, plus a metal lath and plaster ceiling. In addition, this construction is ideally adapted to piping and conduit runs in any direction within the floor.

It will pay you to get complete details on Truscon O-T Open Truss Steel Joists with solid chord sections. Simply contact your local Truscon representative or mail the coupon for booklet E-290 today.

FOR STRENGTH IN LONGER SPANS, Truscon's Clerespan® Steel Joists are the ideal answer. Using this strong but light Warren type truss, floors up to 96 feet in width can be kept entirely free of intermediate supports. And this maximum span joist measures only 48 inches in depth . . . minimizing required wall height. Booklet E-290 contains a complete Standard Loading Table for Truscon Clerespan Steel Joists. Just mail the coupon for your copy.



COMBINING STRENGTH WITH EASE OF INSTALLATION, Truscon Ferrobord® Steeldeck is the ideal roofing to use with steel joist construction. Clipped or welded directly to the steel joists, large areas . . . flat, pitched or curved . . . can be roofed over quickly from the top. No scaffolding is required. Ferrobord comes in lengths long enough to span three or more purlins. Truscon's exclusive design is fully interlocking throughout each length to provide strong, tight joints.

STEEL

and Steel Products

REPUBLIC STEEL CORPORATION
3108 East 45th Street
Cleveland 27, Ohio

Please send me further information on the products checked below:

- ☐ O-T Steel Joists, Booklet E-290
- ☐ Clerespan Steel Joists
- ☐ Truscon Metal Lath
- ☐ Truscon Ferrobord Steeldeck

Name_____

Company_____

Address_____

City_____ Zone____ State_____

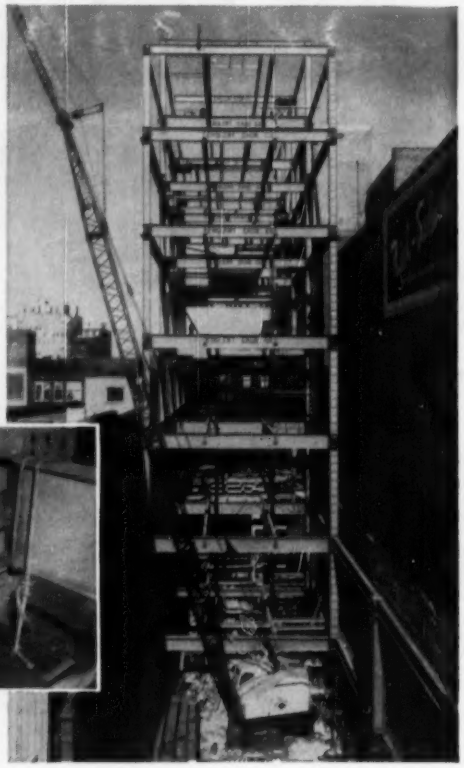
E 2401

When a welded frame building has more useable space...

Has far simpler connections...

Yet uses less steel...

WHY don't you design all buildings for welded construction



All-welded 7-story framework—*Width of structure is only 300 feet with cross beams connected to columns in rigid frame design.*

Welding cross beam web-to-column flange *with Lincoln Fleetweld 5 using Lincoln welders. Jetweld 2 iron powder electrodes are used for downhand work.*

SAVES $10 A TON WITH WELDED DESIGN

A REDUCTION in cost of $10 per ton has been realized through the use of all-welded, rigid frame design on the 7-story Harvey's Department Store in Nashville, Tennessee. The estimated saving results from faster, simpler shop fabrication and detailing over bolted or riveted design.

The welded design used here achieves rigid framing for wind resistance and permits matching of floors in adjacent building without bulky connections normally required with bolting or riveting.

Architects: Marr & Holman, Nashville; Fabricators and Erectors, Englert Engineering Company, Nashville; General Contractor, Sumner Construction Company.

For Studies in Structural Arc Welding write

THE LINCOLN ELECTRIC COMPANY

DEPT. 2320 • CLEVELAND 17, OHIO

Pioneer in Welded Structural Design . . . for Lower Cost

Court Allowed Fair Value Where Price Not Specified

Where a contract does not fix the amount of compensation to be paid for labor or materials, the law invokes the standard of reasonableness and the fair value of the services or materials is recoverable. The Supreme Court of Ohio quoting from 12 American Jurisprudence, Section 324, page 878, had said: "Where labor or materials are furnished by request and no price is agreed on, the law will imply an agreement to pay what they are reasonably worth."[1]

(1) Weber v. Billman, 125 N. E. 2d 866, Supreme Court of Ohio, July 11, 1956.

Consideration Must Support A Promise to Pay Extra Sum

A promise to pay more than the contract price is not enforceable if there's no additional consideration.

Earlier this year a paving subcontractor in New York found himself out on a limb because of this. After he had started a paving job, one of the unions he employed asked for a 20-cent wage increase and threatened a strike unless it was granted. The sub then told the general contractor he would quit the job if the general contractor did not agree to pay one-half of the additional cost. The prime contractor agreed to do so. Upon completion of the work, the prime contractor refused to pay for such excess labor costs and the subcontractor sued to recover them. He was denied a recovery, the court holding that there was no consideration to support the promise to pay more than the contract price for the work.[1]

The court stated: "It is the contention of the defendant (prime) contractors that there is no enforceable contract between the interested parties as to this item because of failure of consideration. It is competent for the parties to a contract to abandon it or to substitute another in its place. Merger of the rescission and promise into one transaction does not destroy them as elements composing the transaction. See, Schwartzreich v. Bauman-Basch, Inc., 231 N. Y. 196, 131 N.E. 887. But there must be a new consideration, and there is a general acceptance in this state that where A is under a contract with B, a promise made by one to the other to induce performance is void. Consideration is not necessary to an act of rescission, waiver, release or discharge, but rather to the enforceability of executory promises. But it is necessary that there be a valid abrogation of the existing contract, and this by mutual agreement. This fact has not been established, whether the test be factual or legal.

"It is true that this is not a situation where coercion or expediency has been utilized by the plaintiff (subcontractor) in a mere attempt to exact more money. The conceded circumstances might well spell out factually a mutual acceptance of immediate danger to the completion of one of interrelated contracts. But termination is not shown. The most that the plaintiff (subcontractor) shows beyond the promise is his reliance upon his capacity to breach the contract, and his statement that he would do so if the excess labor cost was not shared. See McGowan & Connolly Co., Inc. v. Kenny-Moran Co., Inc., 207 App. Div. 617, 202 N.Y.S. 513. Judged from the standpoint of ordinary business morality, the situation of the promisor contractor may well be less defensible than that of the plaintiff. But termination is not presumed. It must be proved and upon the record the plaintiff has failed to sustain his burden."

(1) Arzani v. People, 149 N.Y.S. 2d 38. N. Y. Supreme Court, Onondaga County, March 1, 1956.

Architect, Builder Liable For Injuries to Outsiders

A New York court has perhaps opened the gate for extension to builders and architects of the principle under which a manufacturer is liable to third parties for injuries received as a result of defective products.

The court had before it an action brought against the architects and builder of an apartment house to recover damages sustained by an infant who fell from the porch of the apartment. The basis of the action was that the porch was so improperly designed and constructed as to create a dangerous condition for its users.

The builder and architects contended that since the injured party was not a party to the contract, it had no cause of action. The trial court sustained this contention and dismissed the action. This judgment was reversed by the appellate court,[1] which held that the situation was similar in principle to the law that where a contractor builds a defective scaffold, he is liable for damages resulting therefrom, even though the injured party was not a party to the contract.

(1) Inman v. Binghamton Housing Authority, 152 N.Y.S. 2d 79.

(These summaries of court decisions are prepared by I. Vernon Werbin, New York attorney and civil engineer.)

full 90° bend with one stroke of the ram . . . easy portability . . . extra versatility

Here's the kind of real portability you've been looking for in a bender for ½" to 2" pipe and conduit. Using light, but strong, aluminum alloy for many parts, the new GREENLEE No. 880 Hydraulic Bender is unusually *lightweight*, yet extra rugged, fast, powerful . . . produces 15 tons of ram force! One man can easily carry and operate it to quickly make uniform bends. Complete 90° bends can be made with one ram stroke. Separate two-speed hydraulic hand pump and bending ram simplify handling and setup. Easily operated by hand or may be teamed with a GREENLEE Power Pump for fast production jobs.

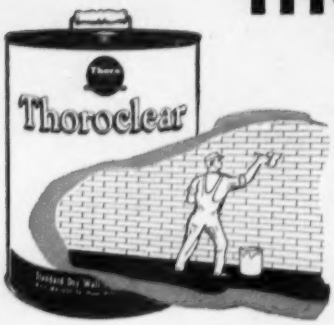
Attachments also available for bending thin-wall conduit, tubing, bus-bars. Get complete details on how to speed jobs and get better results with the new GREENLEE No. 880 Bender. Write for Bulletin E-217.

GREENLEE

GREENLEE TOOL CO.
2231 Columbia Ave., Rockford, Illinois

The THORO System of Masonry Protection

THOROCLEAR



Invisible Water Repellent

Ask your dealer about this powerful silicone water repellent developed by years of research by General Electric Company and now produced by us for your protection. *Ask for Circulars No. 30 and 31.*

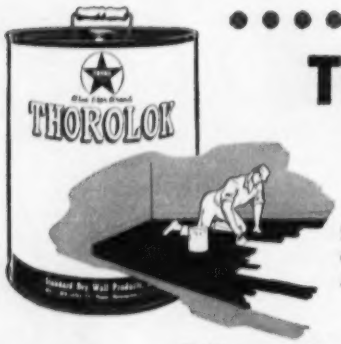
No change in color or texture of brick, limestone, sandstone, tile or stucco surfaces. Applied by brush or spray.

Keep water out of your masonry walls and protect interior plaster, paints and expensive furnishings.

THORITE

20 Minute Set Patching Compound

Repair those broken sills, steps, concrete floors, chimneys and other defective masonry! *Ask for circular No. 20.*



THOROLOK NO. 100

Use it for your basement or factory floors. New, with special alkali resistant pigments. *Ask for Color Card 32-C.*

Manufacturers of

WATERPLUG, THOROSEAL, QUICKSEAL

for all types of masonry protection!

GET OUR PICTORIALLY DESCRIBED LITERATURE "HOW TO DO IT"

STANDARD DRY WALL PRODUCTS, INC.
NEW EAGLE, PENNSYLVANIA

Field and Office

Keeping Down Odor

Procedure comparable to crop dusting is used to mask sewage-lagoon odor

"Lagoon dusting," a new first cousin of crop dusting, is proving an effective means of laying down a powerful odor-masking chemical over sewage lagoons holding undigested sludge in Regina, Saskatchewan.

This novel procedure was resorted to this summer after a boiler that heated Regina's digesters went down and hydrogen sulfide gas emitted from undigested sludge deposited in the lagoons carried to a nearby residential area. However, aerial treatment is only a temporary—and expensive—palliative. It is being performed until a replacement boiler arrives.

• **Background**—Regina, a prairie city of 86,000 population, treats an average 7 mgd in a high-rate trickling filter plant spread over a 30-acre site. Originally, sludge was drawn off into unheated digesters and lagooned—and the city's first encounter with hydrogen sulfide gas resulted. Then in 1952, a boiler was installed in order to heat the digesters and the odor problem subsided—until this summer when the boiler was taken out of service because of excessive corrosion.

Soon after, the sulfide gas problem arose anew. At first, attempts were made to start algae growth in the lagoons with the aid of sodium nitrate, to incorporate a masking agent in the sludge itself, and to pump spray the lagoons. These were either ineffective or prohibitive in cost, so a local crop-dusting firm was called in.

• **Solution**—It was decided to use Sanfax 37-D, a masking compound made by Sanfax Co., Atlanta, Ga., because it is not bactericidal and requires no changeover in the crop spraying airplane's equipment—a most important factor during the crop spraying and dusting season (pilots call it dusting when they are 4 or so ft off the ground, spraying when they are relatively high in the air—perhaps 30 ft).

The Regina operation is definitely dusting—only 3 ft off the ground. A Piper J3, dusting a 55-ft swath, covers the entire site in three or four minutes, using 55 gal of chemical and an equal amount of water.

Complete odor control requires two or three dustings a week, at $175 per application.

Casting a shadow on cars racing by, Armco FLEX-BEAM Guardrail protects the edge of the track at Monza, Italy.

ITALIAN RACE DRIVER TESTS ARMCO FLEX-BEAM GUARDRAIL

---BY ACCIDENT!

A red Lancia racer was streaking around the new race track at Monza, Italy, at 170 miles per hour. Suddenly, a rear tire burst and the car skidded out of control to the top of the speed "saucer." It hit the Armco FLEX-BEAM Guardrail and caromed off to the bottom of the track. The driver got out of the car unhurt!

The Armco FLEX-BEAM? It was "just slightly bent."

You Get Same Safety

To engineers, the important point of this story is that Armco Guardrail will provide equally practical safety for motorists on regular roads and highways. You will find Armco FLEX-BEAM installed on the country's newest major expressways. And its low cost satisfies the limited budgets of county road departments.

Write us for data on Armco FLEX-BEAM Guardrail. Armco Drainage & Metal Products, Inc., 4126 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. In Canada: write Guelph, Ontario. Export: The Armco International Corporation.

Motorists on the West Virginia Turnpike are protected by Armco FLEX-BEAM Guardrail.

ARMCO
FLEX-BEAM
GUARDRAIL

ARMCO

Do You Have This PIPE PROTECTION PROBLEM?

Underground piping must be protected against destructive forces of corrosive soils and electrolytic conditions. Normally, coal tar coating as called for in AWWA specifications C-203 and C-204 would be hot-applied at a coating mill. However, there are times when the volume of pipe involved or the distance of a coating mill make this impractical from a time and cost standpoint.

You'll find the ANSWER with TAPECOAT® . . . the Quality Coal Tar Coating in Tape Form

TAPECOAT is the widely-accepted alternate material that is equivalent to mill-applied hot coal tar protection. With this easy-to-use material, protection can be applied in the field by your own men, because technical know-how, kettles and special crews are not required. You save time and money while providing the long-life protection called for.

TAPECOAT is easily applied, using a torch to soften or bleed the pitch which gives both bond and protection. Available in widths from 2" to 24", it is spirally wrapped or cigarette wrapped around pipe, pipe joints, couplings, conduit, cable, and insulated piping.

Write for illustrated brochure.

The **TAPECOAT®** *Company*

Originators of Coal Tar Coating in Tape Form

1551 Lyons Street Evanston, Illinois

Unit Prices

Second Low Bid Takes Texas Sewer Contract

Because they agreed to complete the job in 150 working days, half the time required by the low bidder, Glade-Oldt Construction Co., Dallas, Texas, will build this 20,000-lin ft interceptor sewer for Fort Worth, Texas. This joint venture bid of $328,240 tops the low bid by 3.15% and the engineer's estimate by 2.05%. Freese & Nichols, Fort Worth, are the engineers.

Concrete sewer pipe, trench excavation and backfill accounts for 36.5% of the total price, pipe in tunnel for 25.35%. Cast iron pipe on reinforced concrete piers, gravel embedment, manholes, specially compacted backfill in tunnel, wet connections and a repaving job take 38.15%.

Concrete sewer pipe, 15 in. to 39 in. in diameter, is priced by size and depth of trench.

The 1,040-lin ft tunnel is 50 ft deep. Concrete grout will be placed between the 36-in. concrete pipe and the 56-in. steel liner.

Specifications require standard WW-P-421a for class-150 mechanical joint cast iron pipe on piers. These have a maximum height of 20 ft above natural ground. The completed section will be covered by about 10 ft of water in Lake Arlington.

Village Creek Sewer System, includes a $1.25 million treatment plant for which bids were taken August 2.

Prevailing wages are $2.25 for skilled labor, $1.50 for semi-skilled labor and pipe layers and $1.15 for unskilled labor.

1 E. Loyd, Fort Worth, Texas	$318,198
No. of working days	300
2C Glade—Oldt Co., Dallas, Texas	$328,240
No. of working days	150
6 Steed Construction Co., Fort Worth, Texas	$422,002
No. of working days	210
EE Freese & Nichols, Fort Worth, Texas	$321,590

Bids: 7-26-56 Items	Unit	Quantity	Unit Prices 1	2C
CP, C-76, 39", 0-6' deep, ip	lf	680	$6.00	$8.25
6-8'	lf	290	6.30	8.40
8-10'	lf	390	6.50	8.52
10-12'	lf	400	6.70	8.70
12-14'	lf	210	6.90	9.00
14-16'	lf	480	7.20	9.40
16-18'	lf	1,070	7.30	10.00
18-20'	lf	790	8.00	10.85
20-22'	lf	790	8.20	11.80
22-24'	lf	820	8.70	12.75
24-26'	lf	420	9.20	14.00
26-28'	lf	130	10.00	15.20
36", 0-6'	lf	60	5.00	5.90
6-8'	lf	240	5.80	6.00
8-10'	lf	270	6.30	6.15
10-12'	lf	170	6.50	6.30
12-14'	lf	300	6.80	6.50
14-16'	lf	120	7.00	7.00
16-18'	lf	260	7.30	7.40
18-20'	lf	110	8.00	8.00
20-22'	lf	80	8.20	9.00
22-24'	lf	50	9.00	10.00
24-26'	lf	50	10.00	11.20
26-28'	lf	20	10.00	12.50
30", 0-6'	lf	30	4.50	4.50
6-8'	lf	420	4.80	4.60
8-10'	lf	500	5.10	4.70
10-12'	lf	460	5.50	4.90
12-14'	lf	1,030	6.00	5.10
14-16'	lf	450	7.00	5.20
16-18'	lf	260	7.20	5.50
18-20'	lf	200	8.00	6.00
20-22'	lf	250	8.20	6.60
22-24'	lf	30	9.00	7.50
CP, C-14, 21", 10-12' deep, ip	lf	10	4.50	3.80
12-14'	lf	20	4.70	4.00
14-16'	lf	50	5.00	4.30
16-18'	lf	60	5.50	4.80
18-20'	lf	60	6.50	5.30
20-22'	lf	90	7.00	6.00
22-24'	lf	180	8.00	6.80
24-26'	lf	240	8.50	8.00
15", 0-6'	lf	300	2.00	2.00
6-8'	lf	110	2.20	2.20
8-10'	lf	340	2.30	2.50
10-12'	lf	660	2.50	2.90
12-14'	lf	450	3.20	3.40
14-16'	lf	1,880	4.00	4.00
16-18'	lf	910	4.20	4.50
18-20'	lf	300	4.70	5.10
20-22'	lf	100	5.50	6.00
22-24'	lf	120	6.00	7.00
C-76, 36", compl i tunnel	lf	1,040	95.17	80.00
CIP, 36", compl on piers	lf	1,088	32.00	35.00
Conc, reinf, for piers*	cy	825	52.00	50.00
Gravel embedment	cy	1,340	4.00	4.50
Conc, 1800# for embed or encasement	cy	1,500	15.00	15.00
2500# for spec encasement	cy	25	20.00	30.00
MH to 6' deep, for 27" pipe and smaller	ea	6	225.00	200.00
for 30" pipe and larger	ea	15	225.00	300.00
extra depth	lf	210	22.00	18.00
Extra for MH drop sta 131/00	ls	jab	800.00	60.00
Bkfl at tunnel, spec compact	cy	7,400	1.50	2.00
Emergency control structure	ls	jab	1,000	1,500
MH, special at sta 84/28.7	ls	jab	1,300	5,000
Wet connections	ls	3	50.00	160.00
Pave replace, triple asph on gravel base	sy	60	2.00	5.00

* 3000# concrete for piers includes reinforcing, forms, excavation, etc.

Arkansas Airbase Paves Apron

The $160,975 contract for a bituminous concrete apron at Little Rock Air Force Base, Arkansas, went to Ben M. Hogan & Co., Little Rock. Their bid topped the estimate of the Corps of Engineers by 14%, but was 5.05% below the second low of the three bids presented.

Concrete pavement at $16 per cu yd (not including cement) takes 47.2% of the total, cement at $4.40 per bbl accounts for 18.7%. The lump sum price for site grading and preparation of the subgrade takes 21.6%, with the remaining 12.5% going to sewer and water lines, electrical work, bituminous surfacing and a laboratory building.

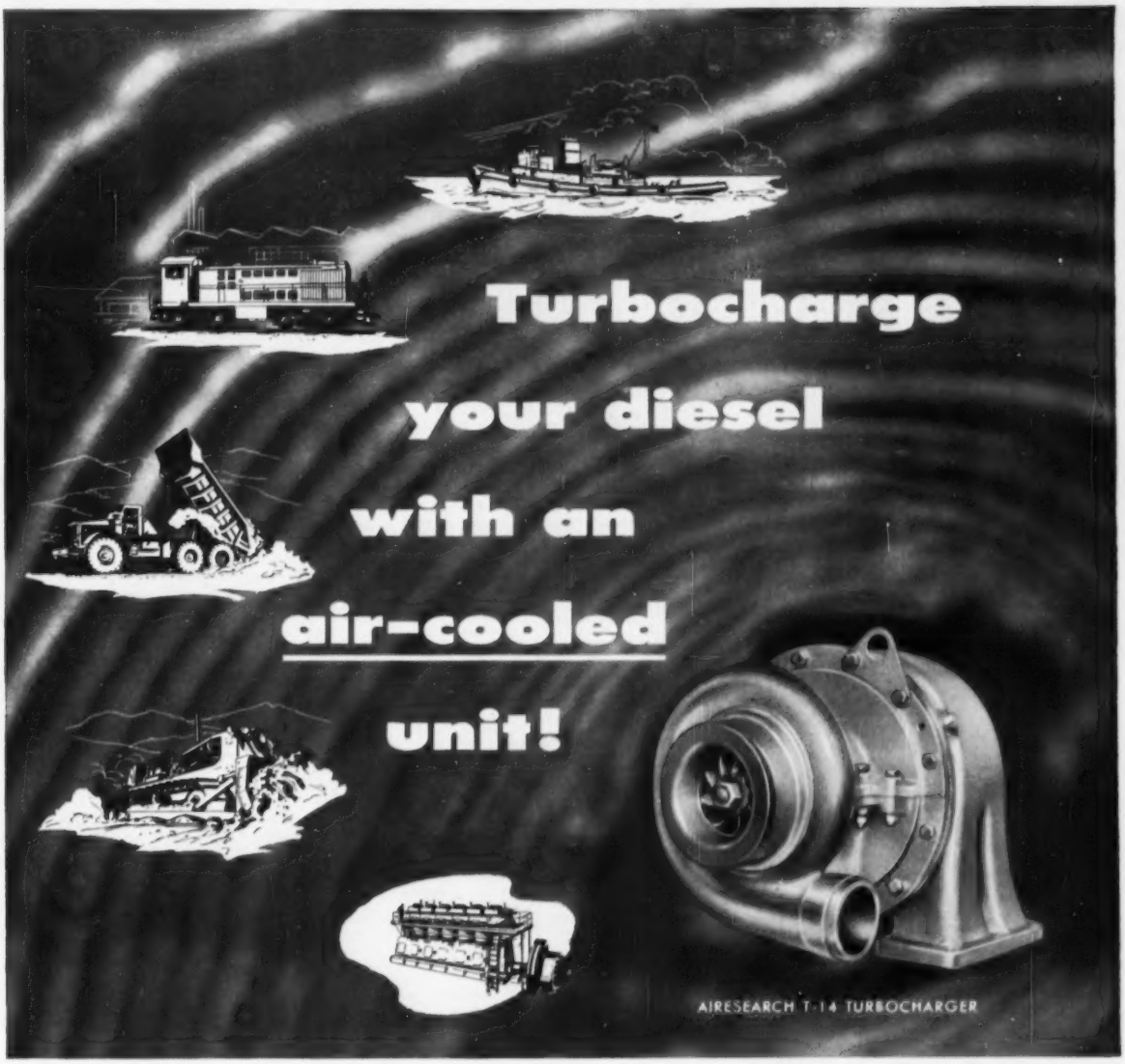
Minimum wage rates are $1.25 for common labor, $2.55 for cement masons, $2.65 to $2.85 for iron workers, $2.875 to $3.125 for electricians and $1.85 to $2.80 for equipment operators.

The three bidders include:

1C Ben M Hogan & Co., Little Rock, Ark	$160,975
2 Worth James Const. Co., Little Rock, Ark	169,535
3 Fred B. Peterson Co., Moline, Ill	235,668
EE Corps of Engineers, Little Rock Dist	141,322

Bids: 6-27-56 Items	Unit	Quantity	Unit Prices 1C	2
Grade & prepare subgrade	ls	jab	$34,747	$36,484
Conc, struct	cy	40	72.00	75.60
pave	cy	4,750	16.00	16.80
Cement for pave	bbl	6,850	4.40	4.62
Storm sewer, 12"	lf	84	4.14	4.35
San sewer alteration	ls	jab	545.00	572.25
Steel frames and gratings	lb	1,410	0.37	0.39
Water line, 6"	lf	950	4.15	4.36
Fire hydrant	ea	2	200.04	204.54
relocate	ls	jab	200.00	250.00
Asph conc, remove	sy	1,035	0.50	0.55
Base crse matl, cr rock	cy	80	10.00	10.50
Bit prime coat	gal	110	0.26	0.25
surf crse	t	33	15.00	16.00
Identification painting	ls	jab	500.00	750.00
Laboratory bldg & service	ls	jab	1,000	1,250
Naze dock electrical work	ls	jab	6,990	7,340
Water main sleeve	lf	85	12.11	12.75

Time to complete: 1C—30 days, 2 & 3—60 days



AiResearch turbochargers increase power to the full capacity of the engine, yet require no extra plumbing and put no added burden on the cooling system.

The diesel industry generally has recognized the fuel-saving, noise and smoke reducing and power-adding advantages of turbocharging. But there are important differences between turbochargers. Some are difficult to service and add complicated plumbing because of the necessity for water-cooling.

All AiResearch turbochargers, from the smallest units for mobile equipment to the large, stationary power plant models, are air-cooled. Each contains a removable rotating assembly which simplifies maintenance, especially in the field. Their modern design resulted from the most extensive experience in the field of small turbomachinery in America.

We invite your inquiry on their application to your diesel equipment.

BASIC SPECIFICATIONS FOR AIRESEARCH TURBOCHARGERS

MODEL	T-10	T-14	T-15	T-30-2	T-30-6
Diameter — in. nom.	9	11.5	15.25	15.25	16
Length — in.	9	14.12	16.75	17.25	21.75
Weight — lb.	40	95	125	135	195
Output — lb/min. (Standard Conditions)	25-40	35-65	35-65	70-95	115-175

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AiResearch Industrial Division

9225 South Aviation Blvd., Los Angeles 45, California

DESIGNERS AND MANUFACTURERS OF TURBOCHARGERS AND SPECIALIZED INDUSTRIAL PRODUCTS

Materials and Labor Prices

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- Iron and Steel Products, Pipe: Last, Oct 11; Next, Nov 15
- Wood Products, Glass, Explosives, Chemicals: Last, Oct 18; Next, Nov 22
- Clay Products, Lime, Plaster, Paint, Roofing: Last, Oct 25; Next, Nov 29

BUILDING BOARD & LATH AND INSULATION—DELIVERED TRUCKLOAD LOTS

	GYPSUM PLASTER BOARD tapered edge per Msq ft ½"	GYPSUM PLASTER BOARD tapered edge per Msq ft ⅝"	GYPSUM BOARD LATH plain or perf per Msq ft ½" x 16" x 48"	GYPSUM SHEATHING tongue & groove per Msq ft ½" x 2' x 8'	FIBER BOARD SHEATHING asph impreg & coat per Msq ft ½" sq ed	FIBER BOARD SHEATHING asph impreg & coat per Msq ft ½" T&G	FIBER BOARD INSULATION sq edge, paint per Msq ft ½"	MINERAL WOOL INSULATION† loose, per 40-lb bag a	MINERAL WOOL INSULATION† 3" batts per M sf a	GLASS FIBER INSULATION† loose, per 40-lb bag a	GLASS FIBER INSULATION† 3" batts per M sf a	ALUMINUM FOIL 60¢ Kraft Expansible 1 side foil per roll of 250 s. f.	ALUMINUM FOIL 60¢ Kraft Expansible Blanket 2 layers foil per Msq. ft
Atlanta	$70.00	$80.00	$43.00	$70.00	$70.00	$127.00	$77.00	$1.00	$60.00	$1.65	$55.00	....	....
Baltimore	51.25/	44.75/	32.50/	55.00/	65.00/	108.50/	69.00/	1.20	66.50	1.60	45.00	$4.00g	$33.50
Birmingham	73.00	80.00	47.77	75.00	80.00	134.00	75.00	1.40	70.00	1.80	75.00	2.99g	....
Boston	87.00m	46.50m	33.00m	82.00m	64.00m	109.00m	79.00hh	1.45	70.00	....	53.00	6.00	55.50
Chicago	67.00	82.00	43.00	62.00	85.00	125.00	85.00	1.85	80.00	....	62/65hh	5.25s	....
Cincinnati	46.40w	41.60w	30.80w	49.81w	67.50w	120.00w	70.00w	1.25	60.00	1.25	73.50	3.12j	50.00w
Cleveland	60.50	55.00	40.00	65.00	70.00	111.00	70.00	1.35/1.50	75.00	1.60**	87.50**	17.50*	50/55
Dallas	56.00	55.00	42.50	65.00	73.50	122.50	70.00	1.90	85.00	1.35	65.83	4.25	....
Denver	62.00	54.50	41.00	62.00	75.50	126.00	74.90	....	71.00j	1.20*	55.00	11.00r	21.00
Detroit	57.50	49.75	36.00	60.00	68.50	98.00	67.50	....	....	1.95h	93.00	....	....
Kansas City	65.00	55.00	40.00	65.00	73.00	120.00	75.00	1.40	80.00	1.40	80.00	11.24dr	19.44
Los Angeles	64.00	59.00	0.225z	66.50	71.87	121.25	80.00	....	83.00	1.35z	64.00	4.20g	....
Minneapolis	80.00	70.00	0.40z	80.00	70.00	140.00	78.00	1.60	80.00	1.80	80.00	6.00	....
Montreal	58.00	48.00	36/39	53.00	80.00	.....	63.00	1.30	58.00	1.20	58.00	18.00n	66.00
New Orleans	55.00	48.00	45.00	70.00	75.00	125.00	72.50	1.75	68.00**	....	.....	.....	.....
New York	53.00	45.50	35.00	54.00	69.00	108.00	70.50	1.55	65.00	1.90*	67.00	5.20	48.50cc
Philadelphia	50.00	48.00	34.00	48.50	67.50	105.00	49.20	....	63/70	....	70/75	5.50/6	34.50/44.50
Pittsburgh	48.00	55.00	40.00	68.00	65.00	105.00	60.00	1.90	72.00	1.90	72.00	4.10	.....
St. Louis	62.00	55.00	39.00	65.00	65.00	110.00	75.00	1.60	80.00	1.85	92.00	6.67i	.....
San Francisco	53.00z	45.00	0.34z	57.00	60.00	101.00	59.00	1.60	68.50	1.55	66.50	4.95	55.00
Seattle	55.00	57.50	46.50	65.00	74.50	125.00	73.50	1.60y	74.00	1.60aaa	50.00aa	4.25g	46.50
Toronto	61.00	50.00	38.00	64.50	75.00	.....	.....	1.40	60.00	....	60.00	17.00s	45.45

*a for hand packing *b per 30¢ bag *d 40¢ kraft paper *e 20¢ sq ft bag, 4" thick *f full trailer loads *g 80¢ kraft paper backing *h LCL *i 40 lb roll *j 80 lb roll *l flame-proof $75.00 *m 10 ton quantities *n distributor's siding *o per Msf roll *p per sf *r per cwt *s per 30¢ bag *t per M sq ft *w fob city *x per sq. yd. *y 26¢ bag *z 32¢ bag *aa fob warehouse *bb 2" *cc in 250 sf rolls, of 18", 20", or 24" width.

HOURLY WAGE RATES—Base rate + fringe benefits

	Bricklayers	Carpenters	Struct. Iron Workers	Hoisting Engineers	Plasterers	Electrical Workers	Steamfitters	Common Labor Building	Common Labor Heavy Const
Atlanta	$3.35	$2.80	$3.05	$2.80	$3.00	$3.20	$3.20+25¢cc	$1.45	$1.45
Baltimore	3.45+10¢d	2.95+7½¢t	3.50+7½¢t	2.70/2.95+10¢q	3.25+7½¢t	3.30	3.20+7½¢t	1.60+7½¢t	1.60+7½¢t
Birmingham	3.50	2.70	3.00+7½¢s	2.52	2.92	3.175	3.17+10¢p	1.50	1.60
Boston	3.50+10¢d	3.05+10¢d	3.55+7½¢h	3.50	3.50+20¢f	3.30+12¢ff	3.20+10¢d	2.30+7¢r	2.30+7¢r
Chicago	3.62½+7½¢h	3.35+10¢s	3.55+7½¢h	3.25+5¢m	3.54+23¢p	3.48+21¢f	3.37+22¢cc	2.57½+7½¢	2.57½+7½¢h
Cincinnati	3.60	3.30	3.35+7½¢h	3.075/3.325	3.375	3.50+3¢hh	3.50+9½¢ff	2.35	2.25
Cleveland	3.55+10¢	3.575	3.50+7½¢h	3.575	3.575	3.60	3.375+10¢d	2.825	2.75
Dallas	3.70	2.95	3.12½+7½¢	3.075	3.437+7½¢h	3.12½+7½¢h	3.10+7½¢s	1.55	1.55
Denver	3.625	3.075	3.00+7½¢t	2.93	3.30+7½¢t	3.00	3.17+15¢ff	2.00	2.00
Detroit	3.53+20¢cc	3.20+20¢z	3.47½+20¢ff	3.20+20¢ccc	3.51+24¢ff	3.50+20½¢ff	3.45+14¢ff	2.45+20¢ccc	2.55+10¢z
Kansas City	3.70	2.95	3.075	3.095	3.375	3.325o	3.15+7½¢h	2.155	2.18
Los Angeles	3.80	3.00+10¢d	3.40+10¢t	2.95+10¢d	3.75+12½¢ff	3.60	3.525+10¢d	2.30+7½¢h	2.30+7½¢h
Minneapolis	3.425	3.00	3.17	2.95	3.10+23¢cc	3.12m	3.00+20¢d	2.25	2.25
New Orleans	3.25+5¢r	2.725	3.10+7½¢h	2.80+7½¢h	2.82½+5¢m	3.025+7½¢h	3.05+15¢s	1.55	1.55
New York	4.05+36¢bb	3.65+292¢bb	3.95+34¢r	3.90+31¢f	4.00+50¢d	3.50+35¢ff	3.85+35¢ff	2.60+21¢ff	2.60+21¢ff
Philadelphia	3.75+17¢r	3.385	3.55+18¢ff/3.10½/3.90½+10¢ff	3.55+15¢ff	3.77+15¢ccc	3.75+11½¢r	3.10	2.40	
Pittsburgh	3.75+17½¢ss	3.325+7½¢h	3.30+7½¢h	3.35+7½¢h	3.40+17½¢ss	3.50	3.425+7½¢h	2.25+5¢r	1.98+10¢d
St. Louis	3.75+19¢r	3.25+7½¢h	3.25+7½¢h	3.325	3.425+7½¢ff	3.60+25¢r	3.55+21¢ff	2.30+7½¢h	2.30+7½¢h
San Francisco	3.75+12½¢ss	3.25½+10¢r	3.40+10¢r	2.98+10¢r	3.61+20¢ccc	3.37½+23½¢ff	3.45+46¢ff	2.325+10¢r	2.325+10¢r
Seattle	3.55+10¢d	2.80+10¢d	3.07+10¢d	2.90+10¢d	3.27½+10¢d	3.20+19½¢ff	3.15+21¢ff	2.37+10¢d	2.37+10¢d
Montreal	2.10+14¢ff	1.90+14¢ff	2.00+14¢ff	1.80+14¢ff	2.12+18¢ff	2.10+18¢ff	2.12+18¢ff	1.30+10¢ff	1.30+10¢ff
Toronto	2.81+10¢ee	2.40+10¢ee	2.40+10¢ee	2.50+10¢ee	2.45+18¢ee	2.65+10¢ee	2.44+10¢ee	1.50+6¢ee	1.50+6¢ee

ENR Skilled Average (Bricklayers, Carpenters, Iron workers): **$3.424.** **ENR Common Average $2.192**

* Cost of living bonus now included in basic wage. † 8% fringe benefits. ** 4% vacation fund. *a 6 hr. day. *b 7 hr. day. *c 3% vac. stamp fund plus 7½¢ WF for bricklayers; 4% VF for electricians plus 8¢ WF, 1% PF. *d 10¢ H&WF. *e 10¢ VF. *f 8% WF. *g 11½¢ WF. *h $2.85 homes & housing plus 7½¢ WF. *i 17¢ WF. *j 10½¢ hr. WF. *k 7½¢ hr. WF. *l 4% VF. *m 5¢ hr. WF. *n Plus 11% fringe benefits on gross wage ea. yr. *o 10¢ PF. *p 3% WF, 3% PF. *q 10¢ ins; 8% vac, and holiday pay. *r 4% WF and 20¢ PF. *s 8% W&PF, 4% VF, 1% NC, 6 PH. *t 7½¢ H&WF. *u 1½% PF. *v 10¢ WF. *w Negotiating. *x 5¢ VP. *y 23¢ WF. *z 5¢ HP. *A 15¢ WF, 15¢ PF, 20¢ B.F. *B 7½¢ VP, 5¢ PF, 1½¢ EF. *C 15¢ WF. *D 10¢ H&WF, 5¢ organ. *E 6% WF, plus travel pay per day. *F Plus $4 per day Annuity contrib. *G 3¢ Prom *H 7¢ WF, 6% VF. *I 18¢ H&WF, 5¢ for Advtg. *J 8% WF, 6 PH. *K 25¢ W & PF, 15¢ VF. *L 3% WF, 3% PF, 2% VF, 1% EF. *M 7½¢ PF. *N 1% WF. *O 10¢ W, 1% NECA. *P 10¢ hosp. ins.; 5¢ vac., 5¢ VF. *Q 1 drum, 2 drums 3.40/3.55 +10¢. *R 12¢ WF and 1¢ apprentice. *S 12½¢ H and WF. *T 21¢ H, W & VF. *U 7½¢ WF, 4% VF, 1% PF. *V 5% WF, 3% PF. *W 2% F. *X 12¢ VF, & 7½¢ H & WF. *Y 7¢ H & WF. *Z 9½¢ WF. *aa 7¢ WF, 15¢ PF. *bb 8¢ WF. *cc 28¢ WF.

	Truck drivers 1½ T	Truck drivers 4 cy	Truck drivers +4 cy	Tractor Operators incl. bulldozers 34-40 hp	Tractor Operators incl. bulldozers 70-100 hp	Tractor Operators incl. bulldozers 100 & over	Tractor scraper 18-18 cy	Power cranes & shovels ½ cy	Power cranes & shovels ¾ cy	Motor grader oper	Air comp oper	Air tool oper
Atlanta	$1.75	$.....	$.....	$2.525	$2.525	$2.525	$2.525	$3.05	$3.05	$2.525	$3.30	$1.67
Baltimore	1.60+7½¢e	1.75+7½¢e	1.85+7½¢e	2.85/3.30h	2.85/3.30h	2.85/3.30h	2.85/3.30h	3.40/3.55+10¢m	3.40/3.55+10¢m	2.85/3.30h	2.85/3.30h	2.25
Birmingham	1.90	1.70jj	2.05nn	2.66	2.66	2.66	2.80	2.80	2.80	2.76	2.385	1.75
Boston	2.195r	.....	.....	3.025d	3.025d	3.025d	3.025d	3.40	3.40	3.40	2.95	2.45+7¢e
Chicago	2.05+12¢ff	.....	.....	3.00+5¢e	3.15+5¢e	3.05+5¢e	2.85+5¢e	3.60+5¢e	3.60+5¢e	2.95+5¢e	2.95+5¢e	.....
Cincinnati	2.20cc	2.30cc	2.40cc	3.075	3.075	3.075	3.075	3.325	3.325	3.325	3.325	3.325
Cleveland	2.50+10¢e	2.50+10¢e	2.50+10¢e	3.325	3.325	3.325	3.325	3.575	3.575	3.325h	3.20	3.20
Dallas	1.55	1.55	1.55	1.55/2.625l	1.55/2.625l	1.55/2.625l	1.55/2.625l	1.55/2.625l	1.55/2.625l	1.55/2.625l	1.55/2.00l	1.70/2.00l
Denver	2.15	2.15	2.25	2.15	2.76	2.76	2.76	2.93	2.93	2.93	2.76	2.35
Detroit	2.45	2.45	2.45	3.30+10¢m	3.30+10¢m	3.30+10¢m	3.30+10¢m	3.30+10¢m	3.30+10¢m	3.30+10¢m	3.025+10¢m	2.68+20¢nn
Kansas City	2.115s	2.115s	2.19e	2.30	2.85e	2.85e	2.85r	3.095	3.095	2.71	2.85l	2.24
Los Angeles	2.405+7½¢e	2.405+7½¢e	2.435+7½¢e	3.05+10¢m	3.05+10¢m	3.05+10¢m	3.30+10¢m	3.30+10¢m	3.30+10¢m	3.30+10¢m	2.84+10¢m	2.51+7½¢e
Minneapolis	2.25	2.25r	2.40r	2.63	2.85r	3.07r	2.85	3.07r	3.33p	2.63	2.52	2.35
New Orleans	1.675	1.925	1.925	2.15+7½¢u	2.80+7½¢u	2.80+7½¢u	2.80+7½¢u	3.30+7½¢u	3.30+7½¢u	2.80+7½¢u	2.15+7½¢u	1.625
New York	2.21aa	2.75+14¢kk	2.75+14¢kk	3.27½+262¢ee	3.27½+262¢ee	3.27½+262¢ee	3.40+272¢ee	4.15+332¢ee	4.15+332¢ee	3.40+272¢ee	3.40+272¢ee	3.00+15¢ee
Philadelphia	——	1.925/2.15+7½¢e	——	——	3.15½/3.90½+10¢m	——	3.15½/3.90½+10¢m	——	3.15½/3.90½+10¢m	——	3.15½/3.90½+10¢m	2.97½+10¢m
Pittsburgh	2.20+7½¢e	2.20+7½¢e	2.20+7½¢e	2.87½+7½¢e	3.20+7½¢e	3.27½+7½¢e	3.025+7½¢e	3.35+7½¢e	3.35+7½¢e	3.35+7½¢e	3.35+7½¢e	2.20+7½¢e
St. Louis	2.30+7½¢nn	——	——	3.325hh	3.325hh	3.325hh	3.325hh	3.325hh	3.325hh	3.325hh	2.775hh	2.775hh
San Francisco	2.32½+10¢e	2.32½+10¢e	2.455+10¢	3.095+10¢m	3.095+10¢m	3.095+10¢m	3.095+10¢m	3.425+10¢m	3.425+10¢m	3.255+10¢m	2.705+10¢m	2.425+10¢m
Seattle	2.03+7½¢nn	2.03+7½¢ddd	2.03+7½¢ddd	2.78+10¢m	2.95+10¢m	2.95+10¢m	2.95+10¢m	3.36+10¢m	3.36+10¢m	3.10+10¢m	2.78+10¢m	2.52+10¢m
Montreal	1.30+10¢ll	1.30+10¢ll	1.30+10¢ll	1.73+14¢ll	1.73+14¢ll	1.73+14¢ll	1.73+14¢ll	1.99+16¢ll	1.99+16¢ll	1.73+14¢ll	1.80+15¢ll	1.60+15¢ll
Toronto	1.53+6¢ll	1.53+6¢ll	1.59+6¢ll	1.90+8¢ll	2.00+10¢ll	2.00+10¢ll	1.90+8¢ll	2.50+16¢ll	2.50+16¢ll	——	2.05+8¢ll	2.05+8¢ll

*a 5¢/hr HWF *b lower rates, straight time, other broken *c 2-axle; 10-wheel $2.25; Euclid $2.45 *d intermediate *e bldg constr; highway $2.55+7¢ WF *f less than 2-1 *j plus $2 pd by employer for hosp. death benefits to family *k bldg constr; steel constr $3.475 *l higher rates are union, other taken from min wage scale approved by County Commissioners Court *m 10¢ H&WF *n flatbed *o under 10 cy *p over 10 cy *q over 50 hp *r blade grader *t single *u 7½¢ HWF *x cat oper *y up to 3½ cy *z 3½ cy & over *aa plus W & PF *bb 3% WF, 2% PF, 11 PH *cc 4% WF & 4% PF *dd up to 5 cy *ee 5 cy & over *ff over 1½ T but not over 3 *gg up to 5 tons *hh excavating *ii 4% VP *kk 7½¢ WF included in base pay *ll 8% fringe benefits *mm 10¢ H & WF, 10¢ insurance *nn 8 cy or less; 8-16 cy $2.90; 16-25 cy $3.15 *oo Plus $2.25/wk WF *rr 12¢ WF *ss 8% WF.

MEXICO CITY PRICES

In Pesos, F.o.b. City		Aug. '56	Sept. '56
Common Wages—Building (8 hr. day) (Peons)	av. per hr.	1.38	1.38
Common Wages—Heavy Const. (8 hr. day) (Peons)	av. per hr.	1.38	1.38
Skilled Labor Wages			
Carpenters (8 hr. day) 1 cl.	av. per hr.	2.48	2.48
Bricklayers (8 hr. day) 1 cl.	av. per hr.	2.48	2.48
Struct. Iron Workers (8 hr. day)			
Remachadores	av. per hr.	2.77	2.77

Struct. Steel, Shapet		Aug. '56	Sept. '56
3"-15" x 12 meters	per metric ton	2100.00f	2100.00f
f fob Monterrey			
Reinf. Steel, Corr. Rods			
¼" x 11 meters	per ton	1825.00	1825.00
⅜" x 11 meters	per ton	1800.00	1800.00
½" x 11 meters	per ton	1800.00	1800.00
⅝" x 11 meters	per ton	1800.00	1800.00
¾" x 11 meters	per ton	1800.00	1800.00
1" x 11 meters	per ton	1800.00	1800.00

Gravel truck load at 3½ cu. meters		Aug. '56	Sept. '56
Blue Gravel	per tr. load	75.00	75.00
Rose Gravel	per tr. load	60.00	60.00
Cement, Std. Port. (Tolteca)	per ton	240.00	240.00
Lumber			
1" Pine	per M ft.	1825.00	1825.00
1½" Pine	per M ft.	1900.00	1900.00

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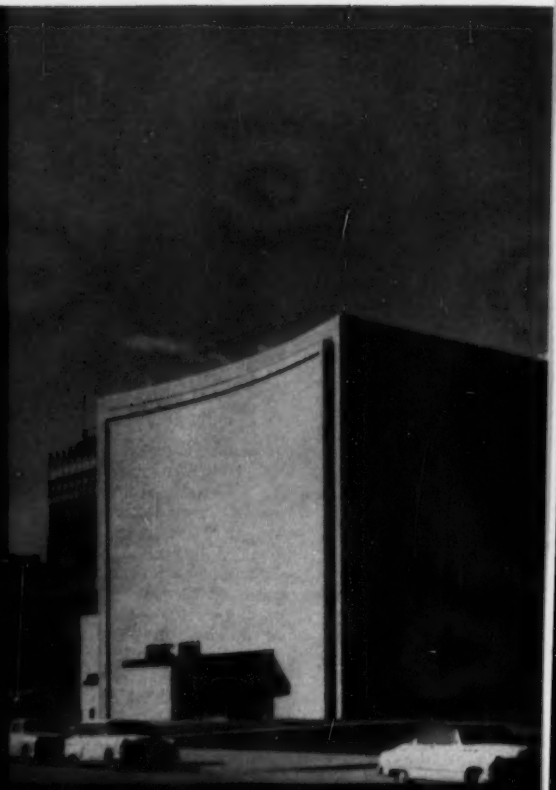
Arena entrance of the Omaha Civic Auditorium. Ceco-Meyer Steelform concrete floor joist construction and Ceco Open-Web Longspan Steel Joists were used in appropriate floor and roof areas of this building.

View of the music hall, one of the areas where Ceco-Meyer Steelform concrete floor joist construction was used . . . in this case, in the stab levels. Same framing was used for other floors, ramps and concourses.



FRAMING METHODS CUT DEADLOAD 30%... SAVE TIME...

PRODUCE RIGID FLOORS AND ROOFS

Ceco helps architects, engineers and contractors meet schedules for finest buildings–It takes a lot of material to build a safe public structure of ten million cubic feet. Weight could be a problem. That was the condition confronting Leo A. Daly Company, architects and engineers, in designing the Omaha Civic Auditorium. They determined 30% in concrete load could be saved by using Ceco-Meyer Steelform concrete joist construction for floors, concourses, ramps and balconies. Similar weight savings were made by using Ceco Open-Web Longspan Steel Joists in areas of the roof. Architect Daly put it this way:

"Metal pan rib floors were used where loading and span permitted. Though the weight is light, the depth of the floor produces great rigidity. Formwork is economical, requiring only a simple centering board for the soffit form under each rib or joist. Longspan Steel Joists used in appropriate roof areas cut weight, too, as compared to heavier standard truss and purlin construction."

When Peter Kiewit Sons' Company set up the building schedule, Ceco service went into action, delivering all material as needed—on time. For the best in floor framing methods and service, call in your Ceco Engineer.

This is the Omaha Civic Auditorium, showing the music hall entrance at left and the exhibit hall entrance at right. Leo A. Daly Company, Architects and Engineers; Peter Kiewit Sons' Company, General Contractors.

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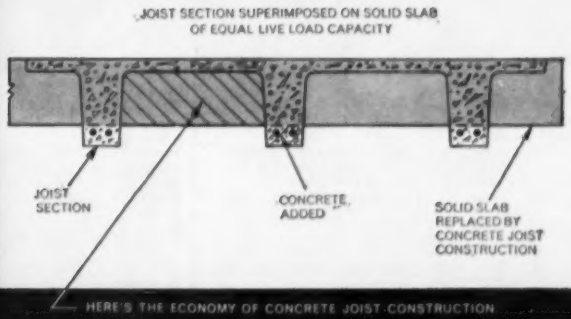
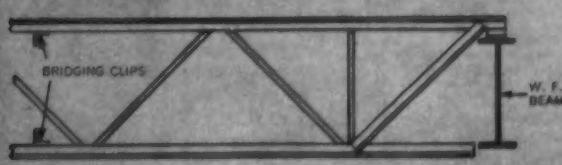
IN CONSTRUCTION PRODUCTS CECO ENGINEERING MAKES THE BIG DIFFERENCE


JOIST SECTION SUPERIMPOSED ON SOLID SLAB OF EQUAL LIVE LOAD CAPACITY
JOIST SECTION
CONCRETE ADDED
SOLID SLAB REPLACED BY CONCRETE JOIST CONSTRUCTION

HERE'S THE ECONOMY OF CONCRETE JOIST CONSTRUCTION

Ineffective concrete eliminated by a shape of section which allows maximum depth for rigidity and minimum deflection. Savings in material and dead weight thus result in better structural performance.



STEEL JOIST CONSTRUCTION SAVES WEIGHT

Open-Web Steel Joists comprise the lightest standard construction and cut framing time by months, compared to heavier, slower methods. They permit wide open floor areas with fewer columns.

Construction Reports

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. WETZEL, L. M. FELIX, M. E. SCIORRA, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

BUILDINGS—BA

Mass., Southbridge—HOSPITAL—BA 11/8—Harrington Memorial Hospital, South St., hospital addn., alterations, laboratory, X-ray facilities, 100 South St. $750,000. G. Adolph Johnson, Inc., 340 Main St., Worcester, archt. CD 5/18/55.

▲ **Mass., West Newbury**—SCHOOL—BA 11/8—Pentucket Regional School Dist., John C. Jacobs, supt., c/o Harry J. Korslund, archt., 906 Washington St., Norwood, Regional Junior Senior High School, Rte. 113 and Main St. $1,500,000. Plans deposit $50, refundable. CD 6/13/55.

Mass., Ayer—SCHOOL—BA 11/13—Town, Elementary School Bldg. Comm., Harold G. Norton, supt. Schools, Town Hall, elementary school, Washington St., Proj. Mass. No. 56-C-502-A6. $700,000. Plans deposit $150. Perley F. Gilbert Assoc., Inc., Sun Bldg., Lowell, archt. CD 3/20.

▲ **Mass., Boston**—HOUSING—BA 11/16—U. S. Eng., 150 Causeway St., Boston, construct and finance Capehart Housing, 120 units, Boston Defense area, Swansea, Rehoboth, Topsfield, Beverly, Randolph, Bedford and Hull. $1,980,000. Plans deposit $10, refundable. CD 10/12.

Maine—HOUSING IMPRVS.—BA On Or About 11/20—U. S. Eng., 150 Causeway St., Boston 14, Mass., construct and finance off-site imprvs., utilities for Capehart family housing for Loring Air Force Base Defense area at Caribou, Caswell, Connor and Limestone, ENG-19-015-57-29. $500,000. Plans deposit $10.

Conn., Southbury—GIRL'S COTTAGE—BA 11/21—State P. Wks. Dpt., 165 Capitol Ave., Hartford, Girl's Cottage No. 18, Southbury Training School, Proj. BI-B-117. $400,000. Plans deposit $60. CD 10/19.

▲ **N. H., Durham**—LIBRARY—BA 11/21—University of New Hampshire, Office of President, Durham, library. $1,200,000. Plans deposit $50. Extended date. Tracy & Hildreth, 4 Davis Court, Nashua, archts. Jennison Co., 87 Putnam St., Fitchburg, Mass., mech. engr. CD 10/19.

Maine—HOUSING—BA On Or About 11/23—U. S. Eng., 150 Causeway St., Boston 14, Mass., construct and finance, Capehart family housing and on-site imprvs., utilities, for Loring Air Force Base Defense Area at Caribou, Caswell, Connor and Limestone, ENG-19-016-57-28. $500,000. Plans deposit $10. CD 4/2, under Me., Limestone.

HEAVY CONSTRUCTION—LB & CA

† **Empire Gas Engineering Co.**, 7 Baltimore Place N.W., Atlanta, Ga. CA $557,442, est. $706,288. addnl. hydrant refueling sys., Dow Air Force Base, ENG-19-016-57-35, BANGOR, ME, U. S. Eng., 150 Causeway St., Boston, Mass. CD 9/24, under LB.

MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
Eastern Roads Co., Inc., 103 Terrace St., Roxbury, Mass., LB $132,987, est. $140,960, timber pile bent bridge, Winthrop. Bids Oct. 16. CD 10/3.
Constructors, Inc., 421 Mass. Ave., Lexington, Mass. LB $88,554, est. $111,330, repairs, etc. to dam, Gleneche Lake Dam, Charlton, MASSACHUSETTS. Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, Mass. Bids Oct. 16. CD 10/8.
MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
Mass.—Old Colony Constr. Co. of Quincy, Vernon St., Quincy, Mass. LB $89,503, est. $98,600 hy. work Blue Hill Ave. and River St., Mattapan;
Mass.—Walter F. Glowaki, Monomay Rd., Nantucket, Mass. LB $92,322, est. $111,787. (2 bidders) hy. work Tom Nevers and Sankoty Rds., Nantucket. Bids Oct. 16. CD 10/3.
C. L. Guild Constr. Co., Inc., 80 Boylston St., Boston, Mass. LB $443,990 est. $450,000. driving piles, South Bay Incinerator, South Bay Ave., Roxbury, BOSTON, MASS. City, Dpt. P. Wks. City Hall Annex, Boston, Mass. Bids Oct. 19. CD 10/10.
Angelo Tomasso, Inc., Warren St., New Britain, Conn., LB $48,994. (1 bidder) dredging of Muck from Pond, Martha Hart Park, constr. gravel base 15 ft. from shore, NEW BRITAIN, CONN. City, City Hall, New Britain, Conn. Geo. J. Molleur, New Britain, Conn., city engr.

BUILDINGS—LB & CA

Fontaine Bros., Inc., 40 Hendrick St., Chicopee Falls, Mass. LB $876,800. (4 bidders) M-505 ASSEMBLY BLDG., Monson State Hospital, MONSON, MASS. State Dpt. Mental Health, c/o Div. Bldg. Constr. 38 Chauncy St., Boston, Mass. Bids Oct. 19. CD 10/4.
▲ **George E. Emerson, Inc.**, 34 Britton St., Pittsfield, Mass. LB $649,964, est. $675,000. (3 bidders) combined bid on ELEMENTARY SCHOOLS, on Bushey Rd. and Egremont SCHOOL; LB $508,836, (3 bidders) ELEMENTARY SCHOOL, Bushey Rd., PITTSFIELD, MASS. City, 43 East St., Pittsfield, Mass. Bids Oct. 18. CD 10/16.
▲ **Town**, Town Hall, New Haven, Conn., cancelled bids to have been opened Oct. 18, East High School, Mitchell Dr. and West High School, Beaver Pond Park, NEW HAVEN, CONN. $5,000,000. CD 8/14.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

† **N. Y., Brooklyn**—FENDER SYSTEM—BA 11/7—Dist. P. Wks. Office, Third Naval Dist., Federal Office Bldg., 90 Church St., New York, Zone 7, replacement fender sys. (partial), Piers "D" and "K" New York Naval Shipyard, NBy 8147, Spec. 8147/56. Plans deposit $25.
† **D. C., Wash.**—STREET LIGHTING FACILITIES—BA 11/9—General Services Admin., P. Bldgs. Serv., Region 3, 7 and D Sts. S. W., Zone 25, street lighting facilities, extens. and replacement, St. Elizabeths Hospital. Plans deposit $15.
Pa., Phila.—BA 11/9—City, Dpt. Procurement, City Hall Annex, Bid 2700-contr. No. S-2206, rough grading, fill and temporary drainage in interior blocks 3, 4, 9, 10, 11, 12 and sewers, street grading, appurtenant work in Third, Galloway and Lawrence Sts. between Packer and Terminal Aves.; Front St. between Pattison and Terminal Aves.; Packer and Pattison Aves. between Lawrence and Seventh Sts.; Seventh St. between Pattison and Terminal Ave. and Terminal Ave. between Front and Lawrence Sts. CD 10/28/43.
N. Y., New York—PLATFORM EXTENSIONS—BA 11/16—New York City Transit Auth., 370 Jay St., Brooklyn, Zone 1, platform extensions and gap fillers at 14 St. Station of Lexington Ave. Line, Manhattan, Contr. No. C-117.
N. Y., New York—BLOCK SIGNALING—BA 11/16—New York City Transit Auth., 370 Jay St., Brooklyn, Zone 1, furnishing, installing block signaling and interlocking equip. for Broadway-7th Avenue Line 34 St. interlocking to 96 St. interlocking, IRT Division, Manhattan. Contr. S-91. CD 3/14/55.
N. Y., Idlewild—POOLS, etc.—BA 11/20—Office Chief Engineer of the Port of New York Auth., 111 Eighth Ave., New York, Zone 11, constr. pools, landscaping and bridge in Central Terminal area at New York International Airport, Contr. NYA 650.002. Plans deposit $30. CD 2/25/53.

BUILDINGS—BA

D. C., Wash.—OFFICES—BA 11/15—National Education Assoc., 1201 16 St. N. W., Stage III, NEA bldg. incl. offices and auditorium. Plans deposit $57. Extended date. Joseph Saunders, 1757 K St. N. W., Wash., D. C., archt. CD 9/19.
N. Y., New York—SCHOOL—BA 11/20—Director, Bureau Constr., 42-15 Crescent St., Long Island City, Zone 1, general constr., P. S. 2 Pike St. between Henry and Madison Sts., Manhattan. Plans deposit $25. CD 1/21/55.

BUILDINGS—SLC

Pa., Butler—FACTORY—Butler Industrial Corp., Butler, soon lets contract, 1 story, steel, brick, 20,000 sq. ft. factory, $250,000, Howard & Murphy, Mellon Bank Bldg., archts.

HEAVY CONSTRUCTION—LB & CA

▲ **Fischbach & Moore, Inc., Slattery Contg. Co., & J. Livingston & Co.**, 226 E. 41 St., New York 17, N. Y. (joint venture) CA $5,950,000. (4 bidders) furnish, install Manhattan and East River portions of 69 KV underground transmission sys., 59th St. substation to Third Ave. sub-station, Manhattan and Brooklyn, Contr. P-191, NEW YORK. New York City Transit Auth., 370 Jay St., Brooklyn 1, N. Y. CD 9/26, under LB.
▲ **Villa Contg. Co., Inc.**, 233 North Ave., Westfield, N. J. LB (A) $1,553,877, (B) $1,575,696, (5 bidders) South Beach imprvs. Contr. No. 4A, promenade, playgrounds, parking field, utilities, Miller Field to Iona St., Richmond Boro, NEW YORK. Comr. Parks, Dpt. Parks, Arsenal Bldg., Central Park, 64 St. and Fifth Ave., New York 21, N. Y. Bids Oct. 22. CD 10/15.
▲ **Hoffman & Elias, Inc., and Nager Elec. Co.**, 254 W. 31 St., New York 1, N. Y. LB $1,529,639. (4 bidders) furnishing, installing, conduit, wiring and misc. electrical equip. for Third Avenue sub-station, N. Y. C. T. S. Contr. No. P-173, BROOKLYN, N. Y. New York City Transit Auth., 370 Jay St., Brooklyn 1, N. Y. Bids Oct. 19. CD 9/19.
▲ **Terminal Constr. Co.**, State Hy. No. 17 and Moonarchie St., Woodbridge, N. J. LB $2,283,000, est. $2,500,000. general constr. and Fairbanks Morse pumps, Massachusetts Ave. Pumping Station, BUFFALO, N. Y. City, Dpt. P. Wks., Geo. J. Goetz, comm., City Hall, Buffalo, N. Y. Bids Aug. 22. CD 7/23;
Ferguson Electric Co., 333 Ellicott St., Buffalo, N. Y. LB $474,550. electrical work (Buffalo, N. Y.);
Geo. D. Clucas, 79 Best St., Buffalo, N. Y. LB $98,763. plumbing work (Buffalo, N. Y.);
Telaak & Fitzgerald, Inc., 1200 Niagara St., Buffalo, N. Y. LB $54,500. heating and ventilating work (Buffalo, N. Y.).
† **Kennedy & Smith, Inc.**, 131-20 41 Ave., Flushing, N. Y. CA $99,100. exten. sanitary sewer, FORT TOTTEN, N. Y. U. S. Eng., 111 E. 16 St., New York 3, N. Y. CD 6/12.
Barth Constr. Co., Rte. 8, Glenshaw, Pa. LB Est. $284,773. bridge reconstr. Locust St. Bridge, NEW KENSINGTON, PA. City, City Hall, New Kensington, Pa. Fred Carothers, New Kensington, Pa., city engr.

BUILDINGS—LB & CA

▲ **Lasker-Goldman Corp.**, 50 E. 42 St., New York 17, N. Y. LB $4,437,000. general constr. RECEPTION BLDG., Matteawan State Hospital, BEACON, N. Y. Henry A. Cohen, dir. Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany, N. Y., Bids Oct. 18;
H. Sand & Co., Inc., 11 Park Place, New York 7, N. Y. LB $608,000. heating work (Beacon, N. Y.).
▲ **Glen-View Corp.**, 111 Branch St., Mount Holly, N. J., Separate Contracts, $1,500,000. 101-unit RESIDENTIAL DEVELOPMENT, Hadonfield-Berlin Rd. area, ERLTON, N. J. Frank W. Hall, Haddon Heights, N. J., archt.
▲ **Clermont Development Corp.**, 8005 Atlantic Ave., Margate, N. J. Separate Contracts. $1,100,000. RESIDENTIAL DEVELOPMENT, Clermont Ave., etc. MARGATE, N. J. Seward G. Dobbins, Pleasantville, N. J., archt.
▲ **The Censullo-Burke Constr. Co.**, Route 3, Box 115, Secaucus, N. J., CA, Est. $1,500,000. 3 new HIGH SCHOOL WINGS, ORADELL, N. J. Bergen Catholic High School, 1040 Oradell Ave., Oradell, N. J. Paul C. Reilly, 111 5th Ave., New York 3, N. Y., archt.
Larsen & Olsen Constr. Co., 351 Kinderkermack Rd., Hillsdale, N. J., CA, $480,200. general construction, Bergen County CHILDREN'S HOME and DIAGNOSTIC

(Continued on page 86)

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England
Middle Atlantic
South
Middle West
West of Mississippi
Far West

PROPOSED WORK

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Public Buildings
Mass Housing
Commercial Buildings
Industrial Buildings
Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.
SOON LETS CONTRACT: SLC
LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.
CD dates shown are of Construction Daily Issue in which last previous report was published.
OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
ENR Engineering News-Record
CD Construction Daily
For additional reports see Construction Daily.

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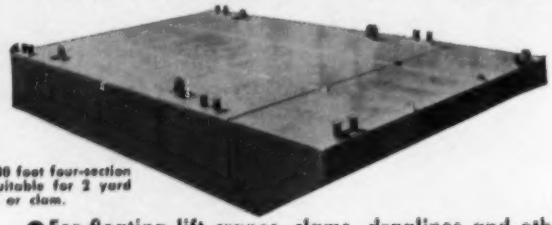
▲ John Hancock Building, Boston
The 26-story John Hancock Mutual Life Insurance Building in Boston rests on 1567 H-piles, varying from 88 to 120 ft in length and driven to bed rock. *Architects and Engineers:* Cram and Ferguson, Boston; *General Contractor:* Turner Construction Co., Boston and New York; *Piling Contractor:* Raymond Concrete Pile Co., Boston.

Veterans Hospital, New York City
The 19-story Veterans Medical and Surgical Hospital in New York City rests on 2600 tons of steel H-piles. *Architects:* Alfred Hopkins and Associates; *General Contractor:* Cauldwell-Wingate Co., both of New York. *Piling Contractor:* I. B. Miller Contracting Co., Long Island City, N. Y.

BETHLEHEM STEEL

BETHLEHEM STEEL

MANITOWOC
SECTIONAL BARGES



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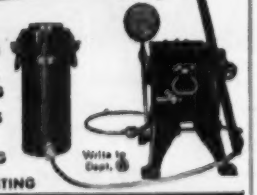

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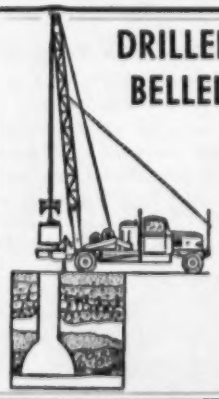

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(Continued from page 84)

CENTER, PARAMUS, N. J. Bd. Freeholders, Bergen Co., Administrative Bldg., Hackensack, N. J. Bids Sept. 4. CD 8/17.

▲ **Moraine Developers, Inc.**, 91 Halsey St., Newark, N. J., Owner Builds, $3,125,000. 90 HOMES off Moraine Rd., Glacier Hills, PARSIPPANY-TROY HILLS, N. J. Joseph Leonte, 817 Chancellor Ave., Irvington, N. J., archt.

▲ **Olds Constr. Co., Inc.**, 57 W. Taylor Ave., Trenton, N. J., CA $2,000,000. 200-unit RESIDENTIAL DEVELOPMENT, Pennington Rd., etc., PENNINGTON, N. J. Blue Ribbon, Inc., 36 E. Grand St., Rahway, N. J. Harry Maslow, 215 Morris Ave., Elizabeth, N. J., archt.

▲ **Jos. L. Muscarelle, Inc.**, Essex St. and State Hy. No. 17, Maywood, N. J., LB $1,640,000, general contract JUNIOR HIGH SCHOOL, Fycke, Lane and Teaneck Rd., TEANECK, N. J. Bd. Educ., Teaneck Twp., Teaneck, N. J. Bids Oct. 16. CD 10/11.

▲ **Fort Washington Industrial Park**, Fort Washington, Pa. CA, Est. $1,200,000. 1 story, 120,000 sq. ft. PLANT, FORT WASHINGTON, PA. Minneapolis-Honeywell Regulator Co., 2753 Fourth Ave. S., Minneapolis, Minn. Shay Howell Lewis & Assocs., Packard Bldg., Phila., Pa., archts.

▲ **Helwig Bros.**, 70 Limekiln Pike, Glenside, Pa. CA $2,000,000. RESIDENTIAL DEVELOPMENT, 40 units, Willow Grove Ave., LAVEROCK, PA. Owner, c/o contractor.

O. H. Martin & Assoc., 18 First St., Sharpsburg, Pa. CA Est. $400,000. brick, steel OFFICE, West Leechburg, LEECHBURG, PA. Allegheny Ludlum Steel Corp., Oliver Bldg., Pittsburgh, Pa. Wm. Simboli & Assoc., 108 Oliver Bldg., Pittsburgh, Pa., archts. CD 5/16, under LB.

▲ **Mellon-Stuart Co.**, 210 E. Park Way, Pittsburgh, Pa. CA Total est. $12,000,000. cement PLANT, WAMPUM, PA. Medusa Portland Cement Co., Midland Bldg., Cleveland 15, O. CD 5/18.

▲ **City Bureau Bldg. Constr.**, 410 Municipal Bldg., Baltimore 2, Md., rejected bids Oct. 10, east wing alteration and new west wing, Baltimore City Hospital, BALTIMORE, MD. LB $2,970,000. CD 10/16, under LB.

Gorn Bros., Inc., 2926 Ridgewood Ave., Baltimore 15, Md. Owner Builds. $472,500. 27 brick, frame DWELLINGS in Wellwood development, BALTIMORE, MD.

H. F. Hallock, Oxford, Md. CA, $408,600. brick, concrete steel COURT HOUSE addn., EASTON, MD. Comrs. Talbot Co., Easton, Md. Perry, Shaw, Hepburn & Dean, 31 St. James Ave., Boston, Mass., archts.

▲ **George Towner Homes, Inc.**, 428 Maury Ave., Wash. 21, D. C. CA, Est. $3,520,000. 220 brick detached HOMES, ODENTON, MD. Manor Club Estates Co-operative, c/o John D'Epagnier, archt., 1004 Ripley St., Silver Spring, Md.

John K. Ruff, Inc., 3010 Ridgewood Ave., Baltimore 15, Md. CA Est. $686,387. CHURCH and CHURCH SCHOOL, TOWSON, MD. Towson Methodist Church, 622 York Rd., Towson, Md. CD 9/25, under LB.

▲† **William E. Craner Co., Inc.**, 2601 Connecticut Ave. N. W., Wash., D. C., CA $5,118,800, base bid incl. alternates, MAXIMUM SECURITY BLDG., St. Elizabeth's Hospital, WASH., D. C. General Services Admin., P. Bldgs. Service, Regional Office Bldg., 7 and D Sts. S. W. Wash., D. C. Bids Sept. 5, awarded Oct. 18. CD 9/7, under LB.

▲ **Har-Bern Constr. Co.**, 1400 Silverside Rd., Wilmington, Del., Separate Contracts, $2,000,000. 188-unit RESIDENTIAL DEVELOPMENT, Harvey Rd., etc., CLAYMONT, DEL.

▲ **McCloskey & Co., Inc.**, 1620 W. Thompson St., Phila., Pa., CA $1,243,000. AUTO PARKING BLDG. and STORE BLDG., WILMINGTON, DEL. Wilmington Park Auth., City Hall Bldg., Wilmington, Del. Bids Oct. 4. CD 10/8, under LB.

SOUTH

HEAVY CONSTRUCTION—BA

† **N. C., Goldsboro**—OFFICERS QUARTERS, etc.—BA 11/29—U. S. Eng., 308 Customhouse, Wilmington, one 2 story approx. 11,500 sq. ft. rein.-con. frame bachelor officers' quarters bldg.; three 3 story approx. 15,000 sq. ft. rein.-con. frame, masonry walls with brick facing air force dormitories for enlisted men; utilities incl. storm drainage, sanitary sewers, water lines, electrical distr. sys. and misc. items of work, Seymour Johnson Air Force Base, ENG-31-075-57-19. Plans deposit $10.40 bachelor officers quarters $29.20 air force dormitories, total $39.60 both. CD 8/27.

▲† **Georgia and South Carolina**—BA 12/4—U. S. Eng., Veranda Room, Manger Hotel, 36 Bull St., Savannah, Ga., dam and appurtenant works, Hartwell Proj., Savannah River, CIVENG-09-133-57-105. $10,000,000 Appropriated. CD 9/25.

BUILDINGS—BA

Fla., Miami—SCHOOLS—BA 11/7—Bd. P. Instruction, Administration Bldg., 275 N. W., 2 St. Flamingo Elementary School, 3340 E. 8 Ave., and Coral Terrace Elementary School, 801 S. W. 24 St. Plans deposit $50. Robert M. Little, 2180 Brickell Ave., archt. CD 4/18.

Ga., Wrightsville—SCHOOL REPAIRS—BA 11/8—State School Bldg. Auth., 244 Washington St. S. W., Atlanta, elementary and high school for Negroes, repairs, Johnson County. Plans deposit $50. James C. Wise & Assocs., 873 Spring St. N. W., Atlanta, archts.

▲ **La., Baton Rouge**—HOTEL—BA 11/10— A. C. Glassell, Captain Shreve Hotel, Shreveport, 10 story Heidelberg Hotel, for Heidelberg Hotel, Lafayette St.,

Baton Rouge, La. $2,000,000. W. G. Knoebel, 906 Sidney St., St. Louis, Mo., archt. CD 10/8.

▲ **Va., Richmond**—OFFICE—BA 11/27—Seaboard Air Lines R. R. Co., W. D. Simpson, ch. engr., Seaboard Bldg., Norfolk, Zone 10, general office bldg., 6 story with 8 story center sect., air-conditioned. $2,500,000. Baskervill & Son, 2313 W. Cary St., archts. Hankins & Anderson, 16 N. 5 St., engrs. CD 2/7.

▲ **Miss., Columbus**—HOUSING—BA 12/4—Procurement & Contg. Office, Columbus Air Force Base, construct and finance 480 housing units, Inv. No. IFB 22-608-57-1. $5,000,000. CD 1/18, under Public Buildings.

HEAVY CONSTRUCTION—LB & CA

▲† **VIRGINIA**—Bureau P. Rds., Dpt. Commerce, 1440 Columbia Pike, Arlington,

Taylor & Keebler Co., Box L-121, Clinton, Md., CA $1,161,195, grading, draining, bridge abutments, etc. from Spout Run to Chain Bridge, George Washington Memorial Parkway, Proj. 1A1. Bids Oct. 12. CD 10/17 under LB.

W. F. Magann Corp., 2420 High St., Portsmouth, Va. LB $535,696 (5 bidders) sewage pumping station, office bldg., connecting gravity bypass and force main sewer lines corner Plume and Atlantic Sts., NORFOLK, VA. Hampton Roads Sanitation Dist. Comn., Board of Trade Bldg., Norfolk, Va. Bids Oct. 16. CD 8/28.

† **Baggett Constr. Co.**, P. O. Box 261, Virginia Beach, Va., LB $82,129 (15 bidders) gate house and fence, Marine Corps Supply Forwarding Annex, NBy 3623, Spec. 3623/56, PORTSMOUTH, VA. Dist. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk 11, Va. Bids Oct. 16. CD 9/25.

▲† **Ruscon Constr. Co.**, 149 E. Bay St., Charleston, S. C. CA, $1,123,641. ordnance storage facilities, Hunter Air Force Base, ENG-09-133-57-10, SAVANNAH, GA. U. S. Eng., 200 E. St. Julian St., Savannah, Ga. CD 8/21.

FLORIDA—State Road Dpt., Tallahassee,

James H. Craggs Constr. Co., Box 22, Gainesville, Fla., CA $823,651. limerock base, b. conc. surf. course, storm sewers, drainage structures 4.197 mi. SR 25, Jobs 2601-111 and 2602-115, Alachua Co. Bids Sept. 20, awarded Oct. 18. CD 9/25, under LB.

† **West Flagler Electric Service Co., Inc.**, Box 109, Panama City, Fla., LB $53,231, Schedule "A," utility bldg., boat house and comfort station, Jim Woodruff Dam, CIVENG-01-076-57-4, FLORIDA. U. S. ENG., P. O. Box 1169, Mobile 7, Ala. Bids Oct. 11. CD 9/28.

▲ **Sullivan, Long & Hagerty, Inc.**, 2028 2 Ave. N., Bessemer, Ala., LB $2,247,942 (6 bidders) sewage treatment plant, McDuffie Island, MOBILE, ALA. Mobile Co. Bd. Revenue, Court House, Mobile, Ala. Bids Oct. 16. CD 9/13.

▲ **KENTUCKY**—Commonwealth of Ky., Dpt. Hys., Frankfort,

Ky.—**Sam Nally Co. & MaGo Constr. Co.**, Bardstown, Ky. LB $625,638. (5 bidders) b. conc. surf. Class I 4.882 mi., Glasgow-Scottsville Rd., F 28 (8), SP 5-152, Barren Co.;

Ky.—**Nally & Gibson**, Springfield, Ky. and **Geoghegan & Mathis**, Bardstown, Ky. LB $628,046. (3 bidders) b. conc. surf. Class I 5.857 mi., Hodgenville-Magnolia Rd., F 10 (3), SP 62-321, Larue Co.;

Ky.—**Markel Elec. Co., Inc.**, 1024 Logan St., Louisville, Ky. LB $199,500. (12 bidders) lighting systems Crittenden Dr., Durrett Lane, Poplar Level Rd., Newburg Rd., Bardstown Rd. and Preston Street Rd., combination U 528 (24) and SP 898, UI 05-1 (5) Part I and UI 05-1 (5) Part 2, Jefferson Co.;

Ky.—**Kelly Contg. Co., Inc.**, 317 Wallace Ave., Louisville, Ky. LB $128,715. (2 bidders) b. conc. Class I surf. on waterbound macad. base 0.615 mi. Myrtle Ave. in Frankford, SP 37-805, Franklin Co. Bids Oct. 11. CD 9/27.

John Hemmer Constr. Co., 1608 Russell St., Covington, Ky. LB $101,986, est. $125,000. (6 bidders) 60x100 ft. community house in Devon Park, COVINGTON, KY. Fifth Third Union Trust Co., Fourth and Walnut Sts., Cincinnati, O. CD 10/5/55.

▲† **Pittsburgh-Des Moines Steel Co.**, Neville Island, Pittsburgh, Pa., LB $7,326,200, est. $5,542,943 (1 bidder) constr. removable test section carts for use in supersonic circuit of the propulsion wind tunnel at Arnold Engineering Development Center, ENG-40-126-57-3, TULLAHOMA, TENN. U. S. Eng., Tullahoma, Tenn. Bids Oct. 16. CD 10/1.

BUILDINGS—LB & CA

† **Kaminer Constr. Co.**, Chamblee, Ga., LB $334,000, local roads, parking area, outside lighting and other imprvs., at Georgia Nuclear LABORATORY, for Lockheed Aircraft Corp., Air Force Plant No. 6, Air Force Proj. 114G-16, DAWSONVILLE, GA. Lockheed Aircraft Corp., Georgia Div., 86 S. Cobb Dr., Marietta, Ga. Vitro Eng. Div., 225 Fourth Ave., New York 3, N. Y., archt. Bids Oct. 1. CD 9/4.

▲† **Southeastern Constr. Co.**, 1311 W. Peachtree St., Atlanta, Ga., CA $1,151,000. two one-story wings and bsmnt., concrete, steel LABORATORY, for industrial development for Lockheed Aircraft Corp. Air Force Plant No. 6, Air Force Proj. No. 114G-7 DAWSONVILLE, GA. Lockheed Aircraft Corp., Georgia Div., 86 S. Cobb Dr., Marietta, Ga. Vitro Eng. Div., 225 Fourth Ave., New York 3, N. Y., archt. Bids Oct. 15, awarded Oct. 17. CD 9/4.

Duffey Constr. Co., Inc., 1395 N.W. 21 St., Miami, Fla., LB $498,879. WAREHOUSE and OFFICES, N.W. 36 Ave. and 67 St., MIAMI, FLA. Miami Retail Grocers,

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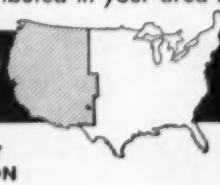

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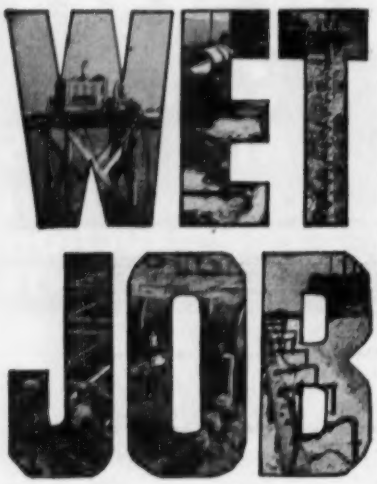

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Inc., 2400 N.W. 23 St., Miami, Fla. Bids Oct. 16. CD 10/10.

▲ **Jack Culpepper Constr. Co.**, 114 E. 5 St., Tallahassee, Fla., LB $1,084,000. CLASSROOM BLDG., School of Education, Florida State University, TALLAHASSEE, FLA. State Bd. Control, Education Bldg. Florida State University, Tallahassee, Fla. Bids Oct. 17. CD 9/20.

▲ **R. F. Farnsworth & Co., Inc.**, 1515 S. Salcedo St., New Orleans, La. LB $2,345,000. LIBRARY, NEW ORLEANS, LA. City, 302 City Hall, New Orleans, La. Bids Oct. 16. CD 9/17.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

O., **Berlin Heights**—BA 11/8—Village, Village Hall, water treatment and distr. plant, Sect. A, complete distr. sys.; Sect. B, elevated steel storage tank and tower; Sect. C, meters (purchase only); Sect. D, constr. water treatment plant and appurtenances; Sect. E, earthwork at reservoir. $255,400. Plans deposit $15 Sect. A and D; $10 Sect. A or D separately; $5 Sects. B, C or E separately. Morris E. Nall & Assocs., Prospect-4th Bldg., Cleveland, Zone 15, engrs.

BUILDINGS—BA

Wis., **Waterford**—SCHOOL—BA 11/8—Bd. Educ., constr. high school alterations addn. $450,000. Ebling Plunkett & Keymar, 1220 N. Milwaukee St., Milwaukee, consult. engrs. CD 8/29.

Wis., **Plymouth**—SCHOOL—BA 11/15—Bd. Educ., one 200x300 ft. and one 200x350 ft. elementary schools. $875,000. Plans deposit $25. CD 8/31/55.

O., **North Royalton**—HIGH SCHOOL—BA 11/19—School Bd., 14713 Ridge Rd., North Royalton, high school addn. $400,000-$500,000. Plans deposit $35 general constr., $30 mechanical, $5 site work and equip. Fulton, Krinsky & DelaMotte, 6014 Euclid Ave., Cleveland, Zone 3, archts.

▲ Ill., **Oak Park**—SCHOOL—BA 11/20—School Dist. 97, 122 Forest Ave., Longfellow Elementary School addn., 315 Jackson Blvd; Holmes Elementary School and gym, W. Chicago Ave. $2,400,000. Perkins & Will, 309 W. Jackson Blvd., Chicago, archts. CD 9/19.

▲† Wis., **Green Bay**—POST OFFICE—BA About 11/26—General Services Admin., P. Bldgs. Service, Room 575, U. S. Court House, 219 S. Clark St., Chicago 4, Ill., U. S. Post Office, E. Walnut St. and N. Jefferson St. $1,485,000. CD 5/2.

Mich., **Lansing**—STORAGE—Bids Asked—Fisher Body Div., General Motors Corp., 401 Verlinden St., hazardous storage bldg. Boddy, Benjamin & Woodhouse, Inc., 28 W. Adams St., Detroit, archt.-engr.

BUILDINGS—SLC

▲ Mich., **Farmington**—SHOPPING CENTER—Farmington Shopping Center, Farmington, soon lets contract, shopping center, Grand River and Mooney St. $1,200,000. Louis Restone, 10811 Puritan St., Detroit, archt.

HEAVY CONSTRUCTION—LB & CA

Ralph Hopple Co., 1717 19th St. N.E., Canton, O. and **Bernard Pipeline Co.**, 90 E. Tuscon St., Barberton, O. CA Est. $300,000. 40,000 ft. gas line to deliver 10 million cu. ft. a day to plants in the area, Tuscarawas Co, OHIO. East Ohio Gas Co., 1405 E. 6 St., Cleveland 14, O. CD 3/10/55.

Consolidated Constr. Co., 101 S. Wells St., Chicago, Ill., LB $306,202, Section 5-B, Calumet Skyway Toll Bridge, constr. foundations between Exchange and Commercial Aves., 400 ft. S.E. of 96 St., CHICAGO, ILL. City, City Hall, Chicago, Ill. Bids Oct. 16. CD 9/24.

▲ **Arcole-Midwest Corp.**, 3225 Main St., Skokie, Ill., LB $1,379,122, Section 2A-2, comp. struc. except steel, drainage, pavement, fencing 73 to 75 Sts. Calumet Skyway Toll Bridges, CHICAGO, ILL. City, City Hall, Chicago, Ill. Bids Oct. 17. CD 9/24.

Knute Aaronson, Herrin, Ill., CA, $107,740. Est. $90,000. 110x40 ft., swimming pool, 15x20 ft. wading pool and 25x25 ft. junior pool with bathhouse, HERRIN, ILL. Herrin Park District, Herrin, Ill. Bids Sept. 26. CD 9/19.

BUILDINGS—LB & CA

Hossler Constr. Co., Box 603, Tiffin, O. CA Total est. $500,000. Phase 1, 3,750 sq. ft. building with gas removal equip. of three-phase LABORATORY facilities expansion, BETTSVILLE, O. Basic Refractories, Inc., Hanna Bldg., Cleveland 15, O. Awarded Oct. 11.

▲ **Coventry Terrace, Inc.**, Robert Hooker, pres., Medina, O. Own Forces. $6,500,000. 650 ranch HOMES, 265-acre site east of Pearl Rd. and south of Brunswick Homes, BRUNSWICK, O.

W. H. Howard Co., 978 Sunbury St., Columbus, O. CA $365,802. GRADE SCHOOL and addns. to two other SCHOOLS, NEW PHILADELPHIA, O. Bd. Educ., New Philadelphia, O. Marr-Knapp-Crawfis, 138 Ray Ave. N.W., New Philadelphia, O., archts. CD 11/15/55.

Traichal Constr. Co., Niles, O. CA Est. $413,000. CHURCH, Upper Robbins Ave., NILES, O. First Presbyterian Church, Church and Main Sts., Niles, O. Donald Lloyd Bostwick & Assocs., 312 N. Main St., Niles, O., engrs.-archts. CD 5/23.

▲ **Tanglewood Development Co.**, 1615 Brookpark Rd., Cleveland 9, O. Own Forces. $1,250,000. 42 HOMES, Ridgewood Dr., SEVEN HILLS, O. CD 5/11.

Knowlton Constr. Co., 1133 W. Columbus St., Bellefontaine, O. CA Est. $790,000, Kemp Rd. Elementary SCHOOL and HIGH SCHOOL addn., XENIA, O. Beaver Creek Twp. Bd. Educ., Xenia, O. CD 11/11/52.

▲ **John F. Chappie & Co.**, 515 Broadway, Gary, Ind., CA, $10,000,000. refractory brick MFG. PLANT, Clark St. and Elgin, Joliet & Eastern R. R. tracks, GARY, IND. General Refractories Co., 1520 Locust St., Phila., Pa.

▲ **Turner Constr. Co.**, 105 W. Adams St., Chicago, Ill., CA, $1,500,000. 163,000 sq. ft. FACTORY, 36-acres, HARTFORD CITY, IND. Minnesota Mining & Mfg. Co., 1500 S. Western Ave., Chicago, Ill. CD 7/11.

▲ **Wm. E. Schweitzer & Co.**, 2207 Dodge St., Evanston, Ill. LB $5,464,000. superstructure for HOSPITAL Addn., CHICAGO, ILL. Chicago Wesley Memorial Hospital, 250 E. Superior St., Chicago, Ill. Bids Oct. 2. CD 9/17.

▲ **E. H. Marhoefer Jr., Co.**, 2424 N. 25 St., Franklin Park, Ill. CA $6,000,000. 1 story, 2 story, part bsmt., FACTORY and OFFICE, Touhy and Central Sts., SKOKIE, ILL. Croname Corp., 3701 N. Ravenswood Ave., Chicago, Ill. Bids Apr. 17. CD 4/16.

▲ **Darin & Armstrong, Inc.**, 2041 Fankell St., Detroit, Mich. CA Est. $1,200,000. WAREHOUSE, OFFICE, SERVICE and GARAGE, SERVICE CENTER, Coolidge and 14 Mile Rd., BERKLEY, MICH. Consumers Power Co., 28 W. Lawrence St., Pontiac, Mich. Bids Oct. 9. CD 9/11.

▲ **Whitehead & Kales Co.**, 58 Haltinner St., River Rouge, Mich. LB $2,797,000. Part "A", furnishing, erecting structural steel of convention-exhibit bldg. CIVIC CENTER, Contr. MH-52-B, DETROIT, MICH. City, City-County Bldg., Detroit, Mich. Bids Sept. 25. CD 8/30;
R. C. Mahon Co., 6565 E. 8 Mile Rd., Detroit, Mich. LB $5,596,822. Part "B" (Detroit, Mich.).

Pulte Strang, Inc., 409 Leafdale St., Ferndale, Mich. LB $824,612. general constr. Trenton HIGH SCHOOL addn., Charlton Rd., TRENTON, MICH. Bd. Educ., Trenton Pub. Schools, 2340 Third St., Trenton, Mich. Bids Oct. 4. CD 9/14.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

† **Oklahoma**—BA 11/20—U. S. Eng., Box 61, Tulsa, Zone 2, project buildings, administration and maintenance, dirt work for Eufala Dam, Canadian River, CIVENG-34-066-57-19. $600,000.

† **Mo., Knob Noster**—SWIMMING POOL—BA On Or About 11/23—U. S. Eng., 1800 Federal Office Bldg., 911 Walnut St., Kansas City 6, Mo., swimming pool, officer, Whiteman Air Force Base, ENG-23-028-57-29. CD 9/12/55.

† **Mo., Knob Noster**—MESS—BA On Or About 11/23—U. S. Eng., 1800 Federal Office Bldg., 911 Walnut St., Kansas City 6, Mo., open mess, officer, Whiteman Air Force Base, ENG-23-028-57-28. CD 9/12/55.

† **Arkansas**—BA 11/27—U. S. Eng., P.O. Box 97, Memphis 1, Tenn., cleanout and enlarging approx. 4 mi. existing channel of Eight Mile Ditch near Paragould, involving approx. 260,000 cu. yd. excav., Greene Co., CIVENG-40-041-57-79. CD 12/24/43.

† **Okla., Enid**—RUNWAY, etc.—BA 11/29—U. S. Eng., Box 61, Tulsa, Zone 2, grade, pave runway and taxiway, Vance Air Force Base. $500,000. CD 8/24.

▲† **N. M., Clovis**—DINING HALLS—BA 12/4—U. S. Eng., Box 1538, Albuquerque, 2 dining halls, 4 dormitories, Clovis Air Force Base, ENG-29-005-57-6. $1,000,000. Extended date. CD 10/17.

† **Mont., Lewistown**—BUILDINGS—BA 12/18—U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash., 49,900 sq. ft. bldgs. for operations area and cantonment area in two areas for TM site No. 178, ENG-45-108-57-59.

BUILDINGS—BA

▲† **Iowa, Burlington**—STRUCTURES, etc.—BA 11/20—Atomic Energy Comn., Burlington Hotel, Burlington, 6 concrete walled process structures and installing utilities, roads and fencing, Iowa Ordinance Plant, Burlington. $1,100,000-$1,300,000.

Minn., St. Paul—DAIRY INDUSTRY—BA 11/20—Regents of the University of Minnesota, C. A. Smith, purch. agt., 404 Admin. Bldg., Minneapolis, dairy industry bldg., $750,000. Plans deposit $20. Ellerbe & Co., E. 505 First National Bank Bldg., St. Paul, archts. CD 7/13/55.

▲† **N. M., Albuquerque**—OFFICE—Bids About 12/10—General Services Admin., General Services Bldg., 19 and F Sts. N. W., Wash 25, D. C., 8 story, concrete, wood piles, concrete, steel Federal Office Bldg., Gold Ave. S.W. between Fifth and Sixth Sts. $5,575,000. Bidding material will be available in three forms (A) financing, constructing and sale of the bldg. (B) financing constr. and sale of bldg. (C) constr. bldg. Applications must state form, drawings and specifications will not be included in form (B) unless specifically requested. Bidding materials will not be furnished to subcontractors or to producers of materials or equip. Bids will be opened at the place and on the date named in the bidding forms, about 7 weeks after the bidding material is available for distribution. CD 10/4/55.

▲ **Minn., Moorhead**—SCHOOLS—BA 12/12—Bd. Educ., Independent School Dist. No. 122, Clay Co., C. A. Halmrast, clk., 2 Junior High Schools in Moorhead and elementary schools in Sabin and Georgetown. $2,250,000. Plans deposit $50 general constr., $30 mechanical work. Foss & Co., Moorhead, archts. CD 5/21.

(Continued on page 90)

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(Continued from page 88)

▲ **Tex., Mission**—POWER PLANT—Bids Asked—Central Power & Light Co., Chaparral St., Corpus Christi (selected list of bidders) electric power plant, generating capacity 66,000-88,000-kw. $4,500,000; power lines, $200,000; area earthwork, grading, $50,000, near here. CD 4/26.

Tex., San Antonio—SHOWROOMS, SHOP, etc.—Bids Asked—Winerich Motor Sales Co., 301 Broadway, auto showrooms, sales display shop, services. $200,000. Bartlett Cocke, 3501 Broadway, archt. W. E. Simpson, Milam Bldg., engr. CD 8/8.

HEAVY CONSTRUCTION—LB & CA

† **U. S. Eng.**, 1800 Federal Office Bldg., 911 Walnut St., Kansas City 6, Mo., cancelled bids to have been opened Oct. 16, constr. embankment, channel Pomme de Terre Dam and reservoir near Hermitage, along Missouri River, ENG-57-25, MISSOURI. CD 9/21.

Vic Koch Excavating Co., 11829 E. Gill St., Independence, Mo. LB **$165,092**, est. $143,000, main sewer lines, 4 pumping stations to serve large area of southeast part of city, between Blue Ridge cutoff and Hardy Ave. and Blueridge and US 40, INDEPENDENCE, MO. City, City Hall, Independence, Mo. Prichard & Assoc., 206 N. Liberty St., Independence, Mo., engrs. Bids Oct. 15.

Centriline Corp., 1400 N. 13 St., St. Louis, Mo. LB **$56,438**, est. $55,000, cleaning, repairing, lining with cement mortar 30 in. and 36 in. c.i. water mains from Compton Hill Reservoir and Menard St. and Geyer Ave. and 30 in. main in Louisiana from reservoir to Henrietta St., ST. LOUIS, MO. City, Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, 12 Blvd. and Market St., St. Louis 3, Mo. Bids Oct. 16. CD 9/21.

† **Peter Kiewit Sons Co.**, 613 9th St., Rapid City, S. D., LB **$407,000**. jet fuel storage, Ellsworth Air Force Base, Inv. 25-066-57-10, RAPID CITY, S. D. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Oct. 18. CD 10/10.

KANSAS—State Hy. Comn., Chanute,
George Bennett Constr. Co., 3300 N. 91 St., Bethel, Kan. CA **$188,064**. (11 bidders) grading 4.076 mi. Proj. 59-2 F 067-2 (11), Anderson Co. Bids Oct. 11. CD 9/28.

KANSAS—State Hy. Comn., Chanute,
Freeto Constr. Co., Inc., Pittsburg, Kan. CA **$154,814**. (11 bidders) Bridge 59-2-25-2, Sta. 372 plus 33, 128 ft., 160 ft. 128 ft. steel girder, Proj. 59-2 F 067-2 (11), Anderson Co. Bids Oct. 11. CD 9/28.

OKLAHOMA—State Hy. Dpt., Capitol, Oklahoma City, Zone 5,
Oklahoma Paving Co., 4131 N. Portland St., Oklahoma City, 11, Okla., CA **$189,164**, est. $224,928, three concrete, steel bridges Hy. 7, at Duncan Stephens Co. Bids Oct. 16, awarded Oct. 17. CD 10/8.

▲ **OKLAHOMA**—State Hy. Dpt., Capitol, Oklahoma City, Zone 5,
Okla.—**Amis Constr. Co.**, 1647 Exchange Ave., Oklahoma City 8, Okla., CA **$261,554**, est. $285,354, grade, drain 5.793 mi. Hy. 2, north of Wilburton, Latimer Co.;
Okla.—**Brewer & McMichael**, Holdenville, Okla., CA **$223,367**, est. $230,000, stabil. aggregate base, b. conc. wid'n. 1.198 mi. US 69 in Atoka, Atoka Co.;
Okla.—**Burch & Canada**, Altus, Okla., CA **$73,992**, est. $95,003, grade, drain, incidentals 5.492 mi. Hy. 6 south of Retrop, Beckham Co.;
Okla.—**Haskell Lemon**, 3014 N. W 49 St., Oklahoma City, Okla., CA **$346,908**, est. $337,694. c. conc. 1.107 mi. bypass road for US 81 at Chickasha, Grady Co.;
Okla.—**Peter Kiewit & Sons**, 1024 Omaha Natl. Bank Bldg., Omaha, Neb., CA **$170,762**, est. $171,617, stabil. aggregate base, double bit. surf. 2.49 mi. on access road to Altus Air Force Base, Jackson Co;
Okla.—**Pool Constr. Co.**, Shawnee, Okla., CA **$236,195**, est. $228,973, stabil. aggregate base with double bit. surf. 7.755 mi. Hy. 18 from Shidler to Kansas state line, Osage Co.;
Okla.—**Standard Industries**, 2119 E. 11 St., Tulsa, Okla. CA **$647,506**, est. $709,401, c. conc. 1.582 mi. US 81 bypass at Enid, Garfield Co.;
Okla.—**W. E. Steelman**, 2800 N. E. 4 St., Oklahoma City 4, Okla., CA **$404,406**, est. $446,659, c. conc. 1.162 mi. Hy. 3 in Ada, Pontotoc Co. Grand total $2,364,690. Bids Oct. 16. CD 10/8.
Acme Constr. Co., 6000 N. W. 39 St., Oklahoma City 11, Okla. CA **$561,687**, est. $600,000, water filtration plant, transmission line and reservoir, DUNCAN, OKLA. City, City Hall, Duncan, Okla. Hudgins, Thompson & Ball, 1411 Classen St., Oklahoma City, Okla., engrs. Awarded Oct. 16. CD 4/13.
Tankersley Constr. Co., First Natl. Bldg., Oklahoma City, Okla., LB **$798,150**, est. $900,000. site grading and utilities for Oklahoma City Airport at Will Rogers Field, OKLAHOMA CITY, OKLA. Oklahoma City Airport, Trust, Oklahoma City, Okla. Bids Oct. 16. CD 10/9.

TEXAS—State Hy. Dpt., Austin,
cancelled bids to have been opened Oct. 17, grading, structures, base, surf. 7.993 mi. Hy. FM 2063, Proj. F 2181-1-1, Hale Co. CD 9/26.

TEXAS—State Hy. Dpt., Austin,
R. C. Buckner, P. O. Box 609, Jacksonville, Tex. LB **$595,878**, 2.743 mi. Hogs, Repress, Fish Lake, Log, W. Socagee and East Socagee Bridges and approaches 2.743 mi. Hy. US 79. Proj. F 806 (7), Panola Co. Bids Oct. 17. CD 9/26.

▲ **TEXAS**—State Hy. Dpt., Austin.
Tex.—**Border Constr. Co.**, P. O. Box 188, Zapata, Tex. and **M. E. Worrell**, Junction, Tex., LB **$199,910**, grading, structures, base, surf. 13.393 mi. Hy. FM 649, Proj. R 329-4-1, Jim Hogg Co.;
Tex.—**Bryan & Hoffman**, P. O. Box 390, Plainview, Tex., LB **$163,316**, grading, structures, base, surf. 16.067 mi. Hy. FM 301 and FM 1780, Proj. C 885-1-3, C 885-2-4, R 967-3-4 and R 967-4-1, Cochran, Hockley and Yoakum Counties; LB **$200,024**, grading, structures, base, surf. 15.903 mi. Hy. FM 1981 and 2344 Proj. R 2165-1-1 and R 2153-1-1, Collingsworth Co.;
Tex.—**Cage Bros.**, 6959 San Pedro St., San Antonio, Tex. LB **$475,607**, flexible base, b. conc. 12.87 mi. Hy. US 90, Proj. F 378 (11), Brewster Co.;
Tex.—**Collins Constr. Co. of Texas**, P. O. Box 1192, Austin, Tex., LB **$377,171**, wid'n pavement, structures, shoulders and hot mix b. conc. 8.199 mi. Hy. US 287. Proj. F 712 (3), Navarro Co.; LB **$713,641**, flexible base, hot mix b. conc. 9.698 mi. Hy. US 84, Proj. F 137 (7), F 85 (4), F 138 (4) and F 463 (3), Freestone and Limestone Counties;
Tex.—**Cooper & Woodruff, Inc.**, 204 Mays Bldg., Amarillo, Tex., LB **$199,012**, grading, structures, base, surf. 11.044 mi. Hy. FM 1630, Proj. R 1609-2&1-1&7, Montague and Cooke Counties;
Tex.—**J. R. Fanning & Co., Inc.**, P. O. Box 1278, Lubbock, Tex., LB **$667,630**, grading, structures, FW&D overpass, flexible base, b. conc. 12.809 mi. Hy. US 287, Proj. F 438 (26) and FG 438 (27) Childress Co.;
Tex.—**Gilvin-Terrell, Inc.**, P. O. Box 2268, Amarillo, Tex., LB **$734,589**, flexible base c. conc. 0.876 mi. Hy. US 60 and 87. Proj. U 60 (10), Potter Co.;
Tex.—**Allen Keller Co.**, P. O. Box 393, Fredericksburg, Tex., LB **$188,966**, grading, structures, base, surf. 10.08 mi. Hy. FM 864, Proj. S 1248 (2), Menard and Schliecher Counties; LB **$188,927**, grading, structures base and surf. 8.743 mi. Hy. FM 187, Proj. S 1279 (2) and (3), Uvalde and Zavala Counties;
Tex.—**L. H. Lacy Co.**, 5630 Yale Blvd., Dallas, Tex. and **Elmer C. Gardner**, P. O. Box 19071, Houston, Tex. LB **$1,570,111**, c. conc. pavement, grade separation structures 3.181 mi. Hy. SH 183. Proj. F 634 (20), Dallas Co.;
Tex.—**McKenzie Constr. Co.**, P. O. Box 806, San Antonio, Tex., LB **$254,209**, grading structures 9.249 mi. Hy. FM 689, Proj. S 2075 (2), Medina Co.;
Tex.—**R. W. McKinney**, P. O. Box 190, Nacogdoches, Tex. LB **$150,223**, grading, structures, base, surf. 5.28 mi. Hy. FM 1281, Proj. S 1956 (1), Grayson Co.;
Tex.—**Holland Page**, P. O. Box 1181, Austin, Tex. LB **$121,563**, widen drainage structures 0.135 mi. Hy. US 183, Proj. C 127-4&3-13&13, Brown Co.; LB **$691,603**, flexible base, c. conc. and hot mix b. conc. 1.99 mi. Hy. Loop 217. Proj. I, 1101 (2) and IG, 1101 (3), Tarrant Co.;
Tex.—**Reynolds & Huff**, P. O. Box 88, Tyler, Tex. LB **$208,043**, flexible base, one course surf. tr. and MP RR overpass 2.059 mi. Hy. FM 349, Proj. R 424-3-4, Gregg Co.;
Tex.—**M. E. Ruby** and **H. & H Constr. Co.**, P. O. Box 96, San Marcos, Tex., LB **$126,652**. grading, structures, base, surf. 7.331 mi. Hy. FM 588. Proj. R 2198-1-1 and R. 2107-1-2, Comanche Co.;
Tex.—**Dean Skinner**, P. O. Box 4057, Austin, Tex. LB **$254,540**. flexible base, hot mix b. conc. 5.38 mi Hy. SH 95. Proj. S 198 (2), Travis and Bastrop Counties. Bids Oct. 17. CD 10/8, 10/1, 9/26.

Standard Oil Co. of Texas, Mercantile Securities Bldg., Dallas, Tex. Own Forces. **$175,000**, water injection program, at Fort Stockton, Pecos Co., TEXAS. CD 10/17.

Hull Telephone Co., Hull, Tex. Own Forces. **$85,000**, rural and telephone pole lines, Hardin and Liberty Counties, TEXAS. CD 6/20.

Eastex Telephone Co-operative, Henderson, Tex. Own Forces. $90,000, pole line exten. work, Harrison and Panola Counties, TEXAS.

Shell Oil Co., Shell Bldg., Houston, Tex. Own Forces. $200,000. L.P.G. undreground storage proj. at Odessa, Ector Co., TEXAS. CD 10/17.

Steed Constr. Co., Box 964, Fort Worth, Tex. LB **$245,534**, water lines; LB $48,201, water storage; LB **$56,190**, water supply, CORSICANA, TEX. City, City Hall, Corsicana, Tex. Reaves & Gregory, 3332 W. 7th St., Fort Worth, Tex., engrs. Bids Oct. 9.

Texas Water Wells, Inc., 951 McCarty St., Houston, Tex. CA **$117,119**. sand water wells, Walcrest Reservoir Well No. 45, DALLAS, TEX. City, City Hall, Dallas, Tex. CD 9/4/56.

Austin Paving Co., 1000 Singleton Blvd., Dallas, Tex. CA **$177,155**, est. $189,000. resurf. portions 13 streets, DALLAS, TEX. City, City Hall, Dallas, Tex. J. G. Rollins, c/o owner, Ch. P. Wks. Engr. Bids Sept. 25.

▲ **C. H. Leavell & Co.**, 1900 Wyoming St., El Paso, Tex., CA **$4,091,800**. Proposal B, with steel windows. South Holly water plant, 50 m.g.d. filter plant and high service pump station, FORT WORTH, TEX. City, c/o Dr. Jack Garrison, mayor, City Hall, Fort Worth, Tex. Bids Oct. 11, awarded Oct. 17. CD 10/15, under LB.

Cantrell & McMillan, 5348 Inker St., Houston, Tex. Own Forces. **$85,000**. storm and sanitary sewers, HOUSTON, TEX. Hilton & Coulson, 3821 Fannin St., Houston, Tex., engrs.

Cantrell & McMillan, 5348 Inker St., Houston, Tex. Own Forces. **$78,000**. c. conc. paved streets, HOUSTON, TEX. Hilton & Coulson, 3821 Fannin St., Houston, Tex., engrs.

Cantrell & McMillan, 5348 Inker St., Houston, Tex. Own Forces. **$48,000**. water lines, HOUSTON, TEX. Hilton & Coulson, 3821 Fannin St., Houston, Tex.

City, City Hall, Monahans, Tex. Own Forces. **$75,000** street repairing, imprvs., MONAHANS, TEX. CD 8/28

City, City Hall, Monahans, Tex. Own Forces. **$60,000**. repairing, reconditioning, replacing some water lines, MONAHANS, TEX. CD 8/28.

City, City Hall, Monahans, Tex. Own Forces. **$80,000**. sanitary sewer lines, MONAHANS, TEX. CD 8/28.

† **MONTANA**—U. S. Forest Service, Federal Bldg., Missoula,
Miller & Strong, Box 366, Eugene, Ore. LB **$415,000**. (5 bidders) clearing, grading, drainage 2.123 mi. Spring Oak Rd. in Lewis and Clark National Forest, 24 mi. northwest of Martinsdale, Proj. 272, Juditch Basin Co. Bids Oct. 5. CD 10/1.

† **J. F. Schroeder & Sons**, Ordway, Colo. LB **$116,265**, est. $109,238. Schedule 1B, earthwork, clearing, structures for irrigation rehab. of Socorro Units 1 and 2, Schedule 1B, south part of Socorro Unit 1, Middle Rio Grande Proj., Spec. DC 4738, NEW MEXICO. Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo. Bids Oct. 2. CD 9/19.

† **U. S. Eng.**, P.O. Box 1538, Albuquerque, N. M., rejected bids Sept. 25, subsurface exploration from the University Campus to point 9 mi. north of Albuquerque, CIVENG-29-005-57-2, NEW MEXICO. Will re-advertise. CD 9/4.

BUILDINGS—LB & CA

State, Dpt. Admin., 19 State Capitol, St. Paul, Minn., rejected bids Sept. 6, ACTIVITIES BLDG., Faribault State School and Hospital, FARIBAULT, MINN. CD 9/12, under LB.

Sheehy Constr. Co., 1255 Larpenteur Ave. W., St. Paul, Minn. CA **$999,400**. general constr. 2 DORMITORIES, Faribault State School and Hospital, FARIBAULT, MINN. State, Dpt. Admin., 19 State Capitol, St. Paul, Minn. CD 9/12, under LB.

▲ **Long Constr. Co.**, 810 Rialto Bldg., Kansas City, Mo. CA general constr., second GENERATING UNIT at Ralph Green Plant, PLEASANT HILL, MO. Total est. **$3,750,000**. Missouri Public Service Co., M. C. Boogher, vice pres., Raytown, Mo. CD 10/17, under LB.;
General Electric Co., River Rd., Schenectady, N. Y. CA turbine, motors, controls and equip. and power transformers (Pleasant Hill, Mo.);
Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y. CA condenser and pumps (Pleasant Hill, Mo.);
The Marley Co., 222 W. Gregory St., Kansas City, Mo. CA cooling tower (Pleasant Hill, Mo.).

▲ **Frank E. Zykan, Inc.**, 4001 Edmundson Rd., St. Louis 21 Mo. Owner Builds. **$1,000,000**. 120 RESIDENCES in Sect. II of Woodson Gardens subdivision on Edmundson Rd. south of Natural Bridge Rd., ST. LOUIS COUNTY, MO.

Cooper Constr. Co., 110 S. 46 St., Omaha, Neb. LB **$833,201**. general constr. CONSTRUCTION CENTER, 63 and Oak Sts., OMAHA, NEB. Metropolitan Utilities Dist., 18 and Harney Sts., Omaha, Neb. Bids Oct. 16. CD 9/21.

▲ **Bennett Constr. Co.**, 3252 Roanoke Rd., Kansas City, Mo. LB **$2,019,222**. general constr. Shawnee-Mission HIGH SCHOOL, MERRIAM, KAN. Shawnee-Mission Dist., High School, Merriam, Kan. Bids Oct. 11. CD 9/25;
Mid-West Plumbing & Heating Co., 2809 E. 85 St., Kansas City, Mo. LB **$437,576**. mechanical work (Merriam, Kan.).

Hahner & Foreman, 423 N. St. Francis St., Wichita, Kan. CA Est. **$150,000**. 1 story, 75x320 ft. BOX MFG. PLANT addn., WICHITA, KAN. The Love Box Co., 700 E. 37 St. N., Wichita, Kan.

Eagle Pass Constr. Co., c/o Deverne Kittles, archt., 250 Southill Rd., San Antonio, Tex. Own Forces. $350,000. DWELLINGS, DEL RIO, TEX. CD 10/3.

Whiteside & Bassett, 107 E. 21 St., Odessa, Tex. Own Forces. **$348,000**. 36 DWELLINGS, ODESSA, TEX. CD 10/8.

FAR WEST

HEAVY CONSTRUCTION—BA

† **Washington**—BA 11/8—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars Brewster, Sch. 1, Item 1, outdoor power transformer, Sch. 2, Item 2, outdoor power transformer for Booster and Relift Pumping Plant Switchyards, Brewster Flat Unit, Chief Joseph Dam Proj. Spec. DS, 4781. L. N. McClellan, assistant comr. and ch. engr. CD 9/10.

Calif., Oxnard—SWIMMING POOL—BA 11/14— U. S. Eng., 751 Figueroa, Los Angeles, swimming pool, Oxnard A.F.B. complete swimming facilities except bearing piles, 2160 lin. ft. ENG-04-353-57-31, $150,000. CD 10/2.

HEAVY CONSTRUCTION—LB & CA

▲ **IDAHO**—State Hy. Dpt., Boise,
Fred Slate Co. Oregon Ltd., 7805 S.W. 40 Ave., Portland, Ore. and **E. E. Hall Co.**, 12012 S.W. Barbur Blvd., Portland, Ore., LB **$2,731,683** roadway, plant mix bit. surf. 7.184 mi. U. S. 10, Kootenai Co. Bids Oct. 16. CD 10/8.

† **WASHINGTON**—Bureau P. Rds., Dpt. Commerce, Morgan Bldg., Portland, Ore., rejected bids Sept. 26, grading, surf. 3 mi. west entrance Paradise Inn Hy. Mt. Rainier National Park. LB **$686,978**. CD 10/3, under LB.

▲ **J. A. Jones Constr. Co.**, Medical Arts Bldg., Seattle, Wash., and **Charles H. Tompkins Co.**, 907 16 St. N.W., Wash., D. C., CA **$18,272,000**. Swift Dam 510 ft. high zone-type rolled earth dam for Swift Hydro Electric Dam on Lewis River, WASHINGTON. Pacific Power & Light Co., 290 S.W. 6 St., Portland 43, Ore. Bids Oct. 16. CD 10/4.

Riverside Sand & Gravel Co., Selah, Yakima, Wash., CA, **$80,550**. stockpiling crushed road materials at 6 locations, ELLENSBURG, WASH. Kittitas Co., Court House, Ellensburg, Wash. Bids Oct. 15.

† **H. Kaeser Co.**, 3629 34 Ave. S., Seattle, Wash., CA, **$55,074**, est. $68,200. pumping facility at Yakima river to serve town of RICHLAND, WASH.

(Continued on page 92)

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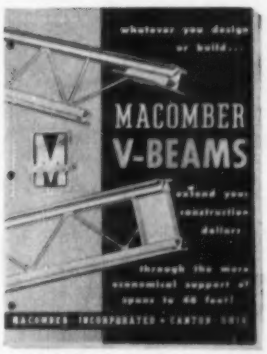
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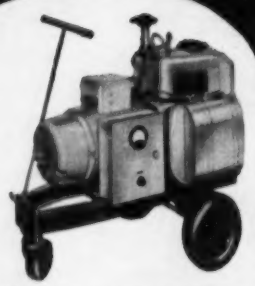

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Dept. G511 Newton, Iowa

(Continued from page 90)

Atomic Energy Comm., 703 Building, Richland, Wash. Bids Sept. 18. CD 9/25, under LB.

† **Phoenix-Matthews, Inc.**, 2335 N.E. 8 Ave., Portland, Ore., LB **$207,661**, est. $178,679. outside utilities, in family housing area, McChord Air Force Base, Inv. 57-36, TACOMA, WASH. U. S. Eng., 4735 E. Margina. Way, Seattle 4, Wash. Bids Oct. 16. CD 9/27.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles,

Peter Kiewit & Sons Constr. Co., 345 Kieways Ave., Arcadia, Calif., LB **$2,168,700** est. $2,350,000, grading, surf. 7.2 mi. 4-lane divided hy. and 5 bridges, 1 pedestrian overcrossing between 0.1 mi. southeast of Date Ave., Oxnard and 0.3 mi. southeast of Calleguas Creek, Ventura Co. Bids Oct. 18. CD 9/21.

MacDonald & Kruse, 7540 Wheatland Ave., Sun Valley, Calif., CA **$965,946**, Proj. 65, Unit 1 and Proj. 221, Line B and portion of Line A, storm drains, LOS ANGELES, CALIF. Los Angeles County Flood Control Dist., 2250 Alcazar St., Los Angeles, Calif. Bids Oct. 5, awarded Oct. 16. CD 10/17, under LB.

† **Fischbach & Moore Electric Contr.**, 646 N. Beachwood Dr., Los Angeles, Calif., LB **$198,870** (6 bidders) 34.5 kv electrical distr. sys., Edwards Air Force Base, ENG-04-353-57-26, MUROC, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Oct. 16. CD 10/2.

Trepte Constr Co., 2001 Kettner Blvd., San Diego, Calif., CA **$869,348**. Earl Thomas Reservoir, SAN DIEGO, CALIF. City, Civic Center, 1600 Pacific Hy., San Diego, Calif. Bids Sept. 14. CD 9/25, under LB.

BUILDINGS—LB & CA

S. M. Gilbert & Co., 7100 E. Marginal Way, Seattle, Wash., LB **$194,740**. (3 bidders) BOILER PLANT to replace existing plant at Plant No. 1, SEATTLE, WASH. Boeing Airplane Co., 7755 E. Marginal Way, Seattle, Wash. L. A. Daly & Assocs., Securities Bldg., Seattle, Wash., engrs. CD 3/8.

Johnson, Busboom & Rauh, N. 601 Cedar St., Spokane, Wash., LB **$476,288** general contract, 4-story, bsmnt., rein.-con. DORMITORY and BOILER ROOM addn. to administration bldg. with heat from existing plant, SPOKANE, WASH. Gonzaga University, E 502 Boone Ave., Spokane, Wash. Bids Oct. 10. CD 9/21.

Selcrest & Fish, 1909 W. Whittier Blvd., Whittier, Calif., LB **$654,316** (9 bidders) reinforced brick, concrete, Colimar Rd. SCHOOL, EAST WHITTIER, CALIF. East Whittier School Dist. 14535 E. Whittier Blvd., East Whittier, Calif. Bids Oct. 17. CD 10/1.

S. V. Hunsaker Builder, 9076 E. Las Tunis St., Temple City, Calif., CA, **$400,000**. 45 frame, stucco DWELLINGS, Ave. H-8, Saigon Ave., and Ave H-10, LANCASTER, CALIF. Hunny Investment Co., 9076 E. Las Tunis St., Temple City, Calif.

▲ **Howard J. White, Inc.**, 870 Charleston Rd., Palo Alto, Calif., CA **$1,347,139**. 125,000 sq. ft., 2 story, rein.-con. Vacuum TUBE MFG. PLANT, Stanford Industrial Tract, PALO ALTO, CALIF. Owner, c/o Michael Gallis, archt., 414 Mason St., San Francisco, Calif. Bids Sept. 28, awarded Oct. 15. CD 9/25.

Williams & Burrows, 550 Harbor Blvd., Belmont, Calif., LB **$477,740** (8 bidders) two physics LECTURE HALLS, Stanford University, PALO ALTO, CALIF. Stanford University Bd. Trustee, Palo Alto, Calif. Gardner A. Dailey, 442 Post St., San Francisco, Calif., archt. CD 8/14.

Barney Wilkerson, 6918 Brockton Ave., Riverside, Calif., CA **$916,443**, CLASSROOM BLDGS. and DORMITORIES, Calif. School for the Deaf and addnl. mech. facilities, RIVERSIDE, CALIF. State Div. Architecture, 110 S. Grand Ave., Los Angeles, Calif. Bids Oct. 3, awarded Oct. 18. CD 10/10, under LB.

CANADA

BUILDINGS—BA

Ont., St. Thomas—BUILDING—BA 11/28—Dpt. P. Wks., Hunter Bldg., Ottawa, 3 story, brick faced, 124x184 federal public bldg. to house post office, unemployment insurance commission, customs and excise branch of Dpt. Natl. Revenue. $650,000.

BUILDINGS—SLC

Que., Bury—SCHOOL—BA 10/24—Peres Assomptionists, c/o Rev. Pere Moquin, soon lets contract 3 story, bsmnt., 63x140 ft., rein.-con. brick walls school extension, concrete floors and fdn. at College D'Alzon, Main Rd. $400,000. Albert Poulin, 1115 Prospect St., Sherbrooke, archt. Cote, Lemieux, Carignan & Bourque, 144 Vimy St. N., Sherbrooke, engrs.

HEAVY CONSTRUCTION—LB & CA

▲ **Bradson Cartage & Crane Ltd.**, 12560 97 St., Edmonton Alta., LB **$1,621,820**. (4 bidders) supplying material, digging, laying, backfilling 22,000 ft. monolithic concrete or precast 5 to 35 ft. depth, 84- to 120-in. diam. storm sewers, EDMONTON, ALTA. City, Eng. Dpt., Civic Block, Edmonton, Alta. Bids Oct. 16. CD 9/12.

Hamilton Constr. Co., 662 Sherman Ave. S., Hamilton, Ont., CA **$272,000**, (8 bidders) Part A and B, sewage treatment plant exten. and sewage pumping station, BURLINGTON, ONT. Nelson Twp., W. K. Sims, clk., R. R. 1, Burlington, Ont. Bids Oct. 4, awarded Oct. 11. CD 9/10.

Miron & Freres Ltee, 2201 Cote St. Michel Rd., Montreal, Que., CA, **$465,165**. sidewalks, curb and pavement on Metropolitan Blvd. from Lebeau St. to

C. N. R. west of Decarie Blvd., MONTREAL, QUE. Montreal Metropolitan Comn., 506 St. Catherine St. W., Montreal, Que. Awarded Oct. 15. CD 6/15/54.

BUILDINGS—LB & CA

▲ **Foundation Co. of Canada Ltd.**, 1302 11 Ave W., Calgary, Alta., CA, Total est. **$2,500,000** sub-structure for 56,000 sq. ft., rein.-con. DEPARTMENT STORE, CALGARY, ALTA. Simpson-Sears Ltd., 176 Yonge St., Toronto, Ont. Bids Oct. 3, awarded Oct. 15. CD 10/3.

▲ **Bird Constr. Co. Ltd.**, 1427 19 Ave. W., Calgary, Alta., LB **$1,422,741**. (5 bidders) HOSPITAL addns., alterations, CALGARY, ALTA. Calgary General Hospital Bd. Calgary, Alta. Bids Sept. 27. CD 9/18.

▲ **J. L. E. Price & Co. Ltd.**, 4664 St. Catherine St. W., Montreal, Que., CA Est. About **$2,400,000**. 4 story, rein.-con. Girls' HIGH SCHOOL, Bonaventure Ave., ST. JOHNS, NEWFOUNDLAND, Roman Catholic Episcopal Corp., St. John's, Newfoundland. Bids Sept. 15, awarded Oct. 12. CD 8/14.

Sillman Co. Ltd., 360 Mc Bean St., Port Arthur, Ont., CA, Est. **$250,000**, 15,000 sq. ft., concrete block, Plywoods PLANT, NIPIGON, ONT. Northern Plywoods Ltd., c/o Mill Valley Lumber Co., Ltd., Oshawa, Ont. Bids Oct. 12, awarded Oct. 12. CD 10/10.

Varamae Constr. Co. Ltd., 532 St. Clair Ave. W., Toronto, Ont., CA, **$974,140**. Thistledown COLLEGIATE, TORONTO, ONT. Etobicoke Twp. Bd. Educ., 4969 Dundas St., W., Islington, Ont. Bids Aug. 22, awarded Oct. 16. CD 9/7, under LB.

A. Fortin Constr. Ltd., 265 Bernard Blvd., Drummondville, Que., CA, Est. **$150,000**. 1 story, 2002200 ft. PLANT addn., ACTON VALE, QUE. Acton Rubber Ltd., 50 St. Paul St. W., Montreal, Que. Awarded Oct. 15.

LATIN AMERICA

HEAVY CONSTRUCTION—LB & CA

▲† **PANAMA**—Bureau P. Rds., Dpt. Commerce, Inter-American Hys., 18 and F Sts., N. W. Wash. 25, D. C., **Framorco SA and Constructora del Pacifico SA**, Panama City, LB **$2,477,416** (2 bidders) Proj. 15, approx. 28 mi. grading, small drainage structures, selected material, sub base, crushed stone base course, 9 bridges. Bids Oct. 17. CD 9/11.

PROPOSED PROJECTS

STREETS AND ROADS

Tex., Corpus Christi—City, City Hall, voted bonds Oct. 6, street paving, **$240,000**; street work, grading, drainage surfacing, hard base, **$700,000**. CD 9/24.

† **Wash., Richland**—Atomic Energy Comn., Richland, street imprvs. **$500,000**. Bids to be asked in Spring. CD 6/30/52, under Public Buildings.

EARTHWORK, WATERWAYS

▲ **Texas**—Water Control & Imprvt. Dist., c/o R. C. Meirer and Martin Bohot, Winchester, Irrigation canals, **$1,000,000**; irrigation water pumping units, **$600,000**, foregoing for canals out of Pin Oak Creek; water reservoirs for flood control and conservation, Pin Oak Watershed area, **$1,000,000**, all foregoing in Bastrop, Fayette and Lee Counties.

▲ **Tex., Corpus Christi**—City, City Hall, voted bonds Oct. 6, newer sewer trunk lines, deepening and widening ship channel, **$4,000,000**; dirt work in developing sites, **$200,000**. CD 9/24.

▲ **Tex., Greenville**—City, City Hall, supplemental water supply, probably a dam near reservoir, **$1,000,000**; main water supply line, **$200,000**. Forrest & Cotton, 803 Praetorian Bldg., Dallas, consult. engrs.

▲ **Tex., Port Lavaca**—Aluminum Co. of America, Port Lavaca, deep water port facilities, Lyndia Ann Channel. **$1,000,000**. Johnsen & Ford, Victoria, consult. engrs.

AIRPORTS

▲† **Del., Dover**—DORMITORY, etc.—U. S. Eng., 2635 Abbottford Rd., Phila., Pa., plants by Whiteside, Foster Damon & Doane, Inc., engr.-archt., Penna. R.R. Bldg., Wilmington, dormitory, warehouse, bldg., storage base, AV fuel **$3,500,000**; gymnasium, **$300,000**. Dover Air Force Base. CD 8/23.

▲ **Tex., Corpus Christi**—AIRPORT—City, City Hall, voted bonds, Oct. 6, airport expansion. **$4,200,000**. CD 9/24.

▲ **Que., Three Rivers**—AIRPORT—City of Three Rivers and Airport Committee of The Chamber of Commerce, Three Rivers, municipal airport, tentative site Rang Ste. Marguerite, St. Louis de France. **$1,000,000**. J. A. Beauchemin & Assocs., 1610 Sherbrooke St. W., Montreal, consult. engrs. J. Urbain Moreau, 427 St. George St., assoc. engr.

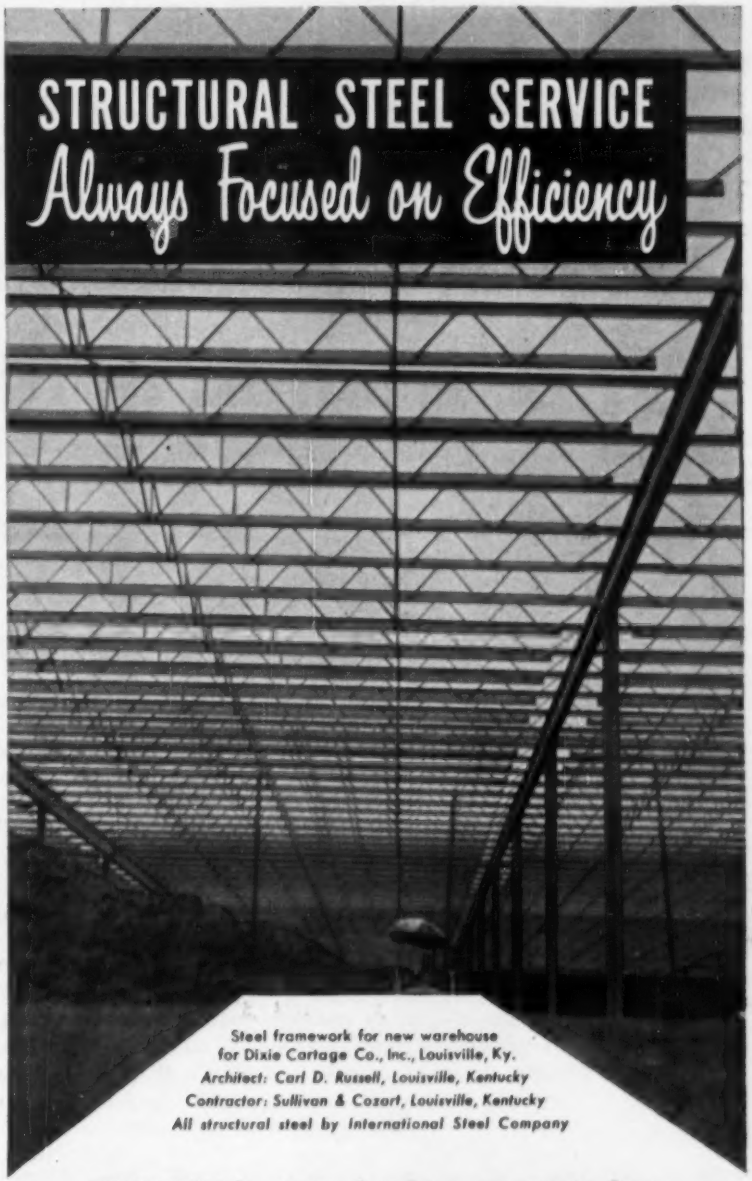
LATIN AMERICA

▲ **Colombia**—Corporacion Nacional de Servicios Publicos Bogota, plans 470,000 kw. hydro-electric plant on Bata River, with 2 mi. tunnel and dam 65 mi. northwest of Bogota, in Cundinamarca and Boyaaca Departments. **$70,000,000**.

PUBLIC BUILDINGS

Calif., Banning—SCHOOLS—Banning Union High School Dist., Banning, voted bonds, new schools $603,750.

(Continued on page 96)



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Contractor: Sullivan & Cozart, Louisville, Kentucky
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In place of wasteful and uncertain crankcase-oil changing based upon mileage or hours in service, many operators of heavy-duty construction equipment now use a better guide that saves them both time and money.

Now you can test used oil in minutes

IT HAS COME as something of a surprise to some maintenance men to discover that they have been throwing away hundreds of gallons of still-good oil . . . year after year. Conversely, it is quite a jolt to realize that a costly engine-repair job could have been prevented by an on-the-spot analysis that would have shown up the condition . . . in minutes!

The recommendations for oil changes issued by engine makers have always been computed on "averages" for the various classes of vehicle service. And like the "average" man on the insurance chart, the average vehicle doesn't exist in the actual fleet. For example, two bulldozers of the same make and model, operating on the same job, can have quite different patterns of oil economy and engine condition. Obviously no one set of rules can apply ideally to all units. And fortunately there is no longer any need for such generalization.

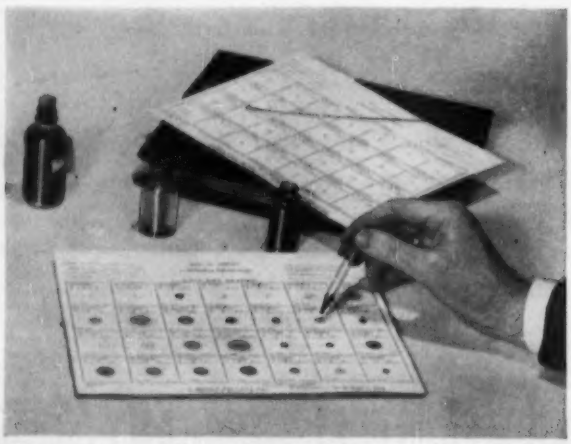
From a couple of drops of used oil, the Shell "ADC* Oilprint Analysis" provides a reliable check of oil condition, in minutes. It is very simple, and with a little practice, it tells you a lot about that oil and the engine that uses it.

What a drop of used oil shows: You place a drop of used oil on a piece of special filter paper supplied by Shell . . . let it stand a minute or two. You will then be able to *see* the following:

Water dilution: Even a tiny amount of water shows up . . . and that means not only that your oil is losing its ability to protect engine parts, but it also shows whether the water represents a normal amount of condensation or something more serious, such as an actual leakage of coolant from a faulty jacket.

Dispersancy/detergency: The same oil drop will give you a picture of how well the special additives in the oil are doing their job . . . whether or not the contaminants are being held in suspension where they do least harm . . . whether the cleansing and dispersing actions are adequate . . . whether the oil is still good.

Adulteration: The color of the oil spot will show whether too much contamination is occurring . . . and will very often point up the cause, indicating a check on



The simple test setup: sample bottles, a wire rod, a bottle of "indicator," and the permanent record card.

This single, on-the-spot sample reveals many things about an engine.

A fleet superintendent sees how easily the test is made.

injectors, nozzles, oil and air filters of diesels, or on plugs, carburetors and filters of gasoline engines.

All of the above can be learned from the single drop of oil . . . in an amazingly short time.

Alkalinity: Engine wear and engine deposits increase as the oil becomes acidic in nature due to contamination from combustion products. A special indicating fluid, developed in Shell Laboratories, tells at a glance whether oil is alkaline and still usable, or acid *and how much.*

Operators who keep an ADC Oilprint Analysis record of each vehicle generally find that the crankcase oil stands up longer than they had figured . . . a distinct saving in lubrication cost. At the same time, there is a running check on each engine that often detects impending trouble before its correction becomes costly. In this respect, the Shell ADC Oilprint Analysis qualifies definitely as one of the valuable recent tools of preventive maintenance.

If you are concerned with extending the service of crankcase oil, and with avoiding the risk of using oils loaded with contaminants, we suggest that you have one of the Shell service engineers demonstrate ADC Oilprint Analysis for you.

*Trademark

Photo shows an oil-spot test card...one phase in the visual life record of a charge of oil.

The Shell "indicator" shows acidity instantly. If spot turns red, oil is no longer fit to use, should be changed quickly.

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(Continued from page 93)

▲ **Calif., Carmichael**—SCHOOL—Arden Carmichael Union School Dist., c/o Supt., P. O. Box 477, plans by Albert Dreyfuss, 2127 J St., Sacramento, new school bldgs. $1,000,000. Bonds voted. CD 8/24/55.

Calif., El Carmino—ATHLETIC—El Carmino Jr. College Dist., Crenshaw and Redondo Beach Blvd., Los Angeles, plans by Smith, Powell & Morgridge, 208 W. 8th St., Los Angeles, rein.-con. athletic bldg., mens gym, El Carmino Jr. College. $385,000.

▲ **Calif., Fremont**—SCHOOLS—Washington Union High School Dist., Fremont, voted $4,000,000 bonds high schools, first one at Decoto, others at Irvington and Newark. Falk & Booth, 16 Beale St., San Francisco, Calif., archts. CD 10/18.

▲† **Calif., Livermore**—PERMANENT FACILITY—U. S. Atomic Energy Comn., 518 17 St., Oakland, plans by Sverdrup & Parcel, engrs.-archts., 417 Montgomery St., San Francisco, permanent facility, incl. several buildings, 50-acre site for Sandia Corp. (Western Electric Co., Prime Contractor). $5,000,000. Work to be started late this year or early 1957.

▲ **Calif., Los Angeles**—HOSPITAL, etc.—Bd. Supervs. Los Angeles Co., 501 Hall of Records, plans by Adrian Wilson & Assocs., 816 W. 5 St., tubercular segregation hospital and recalcitrant unit at Mira Loma Facility, Lancaster, $1,785,840. J. A. Lambie, c/o owner, engr. CD 9/14/55.

Calif., Los Angeles—KITCHEN, etc.—Bd. Supervs., Los Angeles Co., Hall of Records, Los Angeles, plans by Arthur Wolfe, 2525 Hyperion St., kitchen, dining room, Proj. 8667, $598,000; plans by Adrian Wilson, 816 W. 5 St., Los Angeles, Proj. 8694, inmate dormitory, Mira Loma Facility Lancaster. $345,180.

▲ **Calif., Millbrae**—SCHOOL—San Mateo Union High School Dist., San Mateo, plans by John Lyon Reid & Partner, 1069 Market St., San Francisco, rein.-con. struc. steel, New Mills High School, $3,900,000. CD 5/23.

▲ **Calif., Oakland**—SCHOOL—Oakland Unified School Dist., 1025 2nd Ave., plans by Reynolds & Chamberlain, 3833 Piedmont St., Joaquin Miller Junior High School, $1,538,800. CD 10/19/55.

Calif., San Jose—CRIMINAL LEGAL—Santa Clara Co., Courthouse, plans by Frank C. Treseder, 390 Park Ave., Los Gates, criminal legal bldg. $500,000. CD 10/28/55.

▲ **Calif., San Diego**—OFFICE—State Div. Architecture, P. Wks. Bldg., Sacramento, 4-5 story, state office bldg. $2,354,000. CD 3/18/43.

▲ **Colo., Boulder**—PHYSICS, etc.—University of Colorado, Campus, Boulder, plans by Trautwein & Howerd, consult. engrs.-archts, 1411 Walnut St., Phila., Pa., physics bldg. addn., $518,000; law school bldg., $850,000; classrooms, offices and shops, $473,000; student health center, incl. 3 story science classroom bldg., out patients clinic, doctors office, emergency room, laboratories and 54-bed hospital $1,000,000; CD 8/2; engineering bldg. addns. $2,000,000. CD 7/31.

Conn., Derby—HOUSING—Derby Housing Auth., Town Hall, plans by Bannon & Antinozzi, 2503 Main St., Stratford, 50-unit moderate rental housing. $605,000. CD 4/4.

Conn., East Haven—SCHOOL—Town, Town Hall, Deer Run School addn., Foxon, $850,000.

▲ **Conn., Woodbridge**—HIGH SCHOOL—Regional School Dist., Woodbridge, Regional Junior High School for towns of Bethany, Orange and Woodbury. $1,000,000.

▲ **Illinois**—ADMINISTRATION—Illinois State Toll Hy. Comn., 20 N. Wacker Dr., Chicago, plans by Pace Assocs., 53 W. Jackson Blvd., Chicago, 2 story, brick, administration bldg. near intersection of Cermak Rd. and Ill. 83, Hinsdale, DuPage and Cook Counties, $1,500,000. CD 10/31/55, under Streets & Roads.

Ill., Elmwood Park—SCHOOL, etc.—Elmwood Park School Dist., 232, 2019 N. 78 St., plans by Nicol & Nicol, 23 E. Jackson Blvd., Chicago, elementary school and gymnasium, 2318 N. 75 Court, $650,000.

▲ **Ind., Indianapolis**—APARTMENT—Indiana University, c/o Med. Center, 1300 W. Mich. St., plans by Edw. D. James, 122 E. Mich. St., 3 story, masonry precast concrete slabs, steel, apartment dormitory for medical center students. $1,100,000. Ammerman, Davis & Stout, K.P. Bldg., mech. engrs. CD 10/15.

▲ **Ind., Indianapolis**—APARTMENT—Indiana University, 1100 W. Michigan St., plans by Edward J. James, 122 E. Michigan St., apartment for married students at Medical Center. $1,210,000. CD 9/28.

Iowa, Keokuk—SCHOOL—Bd. Educ., Keokuk, plans by Perkins & Will, 309 W. Jackson St., Chicago, Ill., school, $750,000. CD 10/15.

▲ **Kan., Newton**—SCHOOL—Newton City Schools, H. W. Scott, supt. Schools, voted $1,250,000 bonds Oct. 2, Junior High School and addns. to 3 grade school bldgs. $1,367,000. Schmidt, McVay & Peddie, 1832 E. 2nd St., Wichita, archts. CD 7/5.

La., Bastrop—HOSPITAL—Morehouse Parish Police Jury, plans by Allen T. Turpin, 2400 Louisville Ave., Monroe, addn. to Morehouse Parish Hospital. $800,000.

Mich., Monroe—SCHOOL—Bd. Educ., Airport Community School Dist., bond election Nov. 27, school program. $900,000.

▲ **Mich., Plymouth**—STATE HOME AND TRAINING SCHOOL—State, A. N. Langius, dir. State Bldg. Dpt., Lewis Cass Bldg., Lansing, Plymouth State Home and Training School, incl. custodial unit, administration bldg., utilities, power plant, children's hospital, south of Northville and north of here. $5,000,000.

▲ **Minn., Minneapolis**—HOUSING—Minneapolis Housing Redevelopment Auth., Metropolitan Bldg., R. T. Jorvig,

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exec. dir., plans by Lang & Raugland, 802 Wesley Temple Bldg., two 12 story apartment bldgs., some 2-unit bldgs., row housing, 264 units, Site Q North, $4,102,193; plans by Thorshov & Cerny, Metropolitan Bldg., 7 story apartment, some row structures, 2-unit structures, 166 units, Site & South, $2,461,640. CD 7/24/52.

Mo., Kansas City—SCHOOLS—Bd. Educ., Library Bldg., plans by Kivett & Myers, 1016 Baltimore St., Kansas City, Mo., Junior High School, $1,000,000; plans by Curtis & Cowling, 912 E. 63 St., Kansas City, Mo., Whittier Elementary School, 10 and Gilmore Sts., $940,000; plans by Marshall & Brown, 1016 Baltimore St., Kansas City, Mo., 2 sections of Longfellow School, 2830 Holmes St., $540,000; plans by Peterson & Mantel, 1103 Armour St., Kansas City, Mo., Switzer Elementary School, 1829 Madison St., $375,000. CD 5/4.

Mo., St. Charles—SCHOOL—Bd. Educ., St. Charles School Dist., voted $575,000 bonds Oct. 9, school bldgs. and addns.

▲ **Mo., University City (St. Louis 5 P.O.)**—SCHOOL—School Dist., Bd. Educ., Dr. Robert L. Gilchrist, supt. Schools, 6701 Delmar Blvd. $3,875,000 bond election Dec. 4, schools, addns., imprvs. CD 6/2/55.

▲ **Nev., East Ely**—HIGH SCHOOL, etc.—White Pine County School Bd., East Ely, voted bonds, new Junior High School; 3 elementary school addns.; repairs to existing schools. $1,975,000. Bids about May 15, 1957. Ferris & Erksine, 777 LaRue St., Reno, archts.

▲ **N. J., Elizabeth**—SCHOOL—City, City Hall, high School, 6-acre tract bounded by Jefferson Ave., E. Grand St., Madison Ave. and Hampton Pl. $5,160,000.

▲ **N. J., Paramus**—SCHOOL—Bd. Educ., Paramus, plans by Arthur E. Rigolo, Rte. 46 and Grove St., Clifton, Ridge Ranch School addn. $400,000. Multipurpose room addn. to Memorial School. $350,000. plans by Lawrence Licht, 19 Knickerbocker Rd., Englewood, elementary school, Ridgewood Ave., $1,000,000.

▲ **N. Y., New York**—SCHOOL—Bureau Constr., Bd. Educ., 45-12 Crescent St., Long Island City, plans by Harry M. Prince, 101 Park Ave., Zone 17, 3 story Junior High School 149, on block bounded by 144 St., 145 St., Third Ave. and Willis Ave., Proj. E-386, $3,195,000.

▲ **N. Y., Waterloo** — HOSPITAL — Bd. Taylor-Brown Memorial Hospital plans by John C. Ehrlich, 22 Seneca St., Geneva, hospital bldg. $1,300,000.

N. C., Goldsboro—Wayne Memorial Hospital, S. Y. Herring, chmn. bd., 809 E. Ash St., enlarging hospital. 48 bids, $500,000. CD 2/3/48.

O., Akron—SCHOOL—Bd. Educ., 70 Broadway, plans by Edwin Bliss, schools archt., c/o owner, remodel, expand Jennings Junior High School, incl. gym., cafeteria, auditorium, $500,000-$600,000. CD 11/16/50.

▲ **O., Akron**—SCHOOLS—Springfield Local School Dist., bond election Nov. 6, new schools and addn. to existing schools. $1,100,000. CD 11/9/54.

▲ **O., Cincinnati**—UNIVERSITY IMPRVS.—City, City Hall, bond election Nov. 6, University of Cincinnati imprvs. $1,600,000. CD 11/5/54.

O., Dover — SCHOOL — Tuscarawas Valley Local School Dist., Dover, bond election Nov. 6, new school and addn. $894,000. CD 11/14.

Pa., East Stroudsburg—DORMITORY—General State Auth., 18 and Herr Sts., Harrisburg, plans by H. A. Julian Corp., 1200 N. Broad St., Phila., women's dormitory, East Stroudsburg State Teachers College, $800,000. CD 3/1.

Pa., Edinboro—DORMITORY—General State Auth., 18 and Herr Sts., Harrisburg, plans by Gifford Assocs., 119 W. 8 St., Erie, men's dormitory, Edinboro State Teachers College. $840,000. CD 3/1.

▲ **Pa., Harrisburg**—PATIENT—General State Auth., 18 and Herr Sts., Harrisburg, plans by Clayton, J. Lapley, Riverview Manor Apartment, Harrisburg, patient bldg. and dietary service unit, Harrisburg State Hospital, $2,400,000. CD 6/7.

Pa., Johnsville—SCHOOL—Centennial Jr. School Dist., plans by John S. Carver, 2112 Spruce St., Phila., 1 story, masonry 18 classroom elementary school, Warminster. $540,000. CD 2/27.

▲ **Pa., Phila.**—HOSPITAL—General State Auth., 18 and Herr Sts., Harrisburg, plans by Engineering Consultants, 843 N. 19 St., hospital bldg. unit, Tuberculosis Sanatorium No. 4, $3,000,000. CD 4/16/54.

▲ **Pa., Slippery Rock**—DORMITORY—General State Auth., 18 and Herr Sts., Harrisburg, plans by Altenhof & Brown, 1230 Park Bldg., Pittsburgh, men's dormitory, Slippery Rock State Teachers College, $1,200,000. CD 3/1.

▲ **Pa., Waymart**—WARD BLDGS.—General State Auth., 18 and Herr Sts., Harrisburg, plans by Peerless Engineers, Inc., 535 Hamilton St., Allentown, two patient ward bldgs., Farview State Hospital, $1,500,000.

▲ **Pa., Wernersville**—PATIENT—General State Auth., 18 and Herr Sts., Harrisburg, plans by Thalheimer & Weltz, 1315 Walnut St., Phila., two patient bldgs., Wernersville State Hospital, $4,800,000.

▲ **Pa., West Chester** — DORMITORY — General State Auth., 18 and Herr Sts., Harrisburg, plans by Henry D. Dagit, 1329 Race St., Phila., men's dormitory, West Chester State Teachers College. $1,200,000. CD 3/2.

▲ **Tex., Dallas**—SCHOOLS—Dallas Independent School Dist., 3700 Ross St., plans by Boatwright & Thompson, 1948 Kessler Parkway, Wm. M. Anderson High School, 590 Cassidy Lane in Pleasant Grove area, $1,250,000; plans by Goodwin & Cavitt, 4801 Lemmon St., Edward H. Cary Junior High School, $1,750,000. CD 12/15/54.

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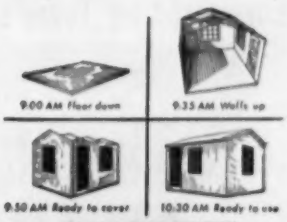

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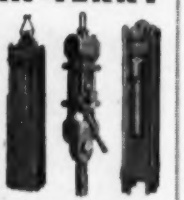

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▲ **Tex., Dallas**—BUILDINGS—Veterans Admin., Munitions Bldg., Wash. 25, D. C., altering existing Bldgs. 1, 2, 3, and 4. $1,500,000. CD 3/1.

Tex., Fort Worth—HIGH SCHOOL—Castleberry Independent School Dist., defeated $500,000 bonds Sept. 29, high school. (Correction—status). CD 10/8.

Tex., Mission—SCHOOL—Mission Independent School Dist., Mission, defeated bonds Oct. 6, school. $500,000.

▲ **Tex., Wharton**—HOSPITAL—Gulf Coast Medical Foundation, c/o R. A. Rugeley pres. Foundation Bd., c/o Chamber of Commerce, 100 bed benevolent hospital. $1,000,000.

▲† **Wash., Spokane**—POSTOFFICE, etc.—General Services Admin., Pub. Bldgs. Admin., General Services Bldg., Wash., D. C. 160,000 sq. ft. postoffice terminal annex bldg. and garage, $1,250,000.

▲ **Wis., Wauwatosa**—CHILDREN'S HOUSE—Milwaukee County Institutions & Grounds, imprvt. program, children's home, $750,000; General Hospital, $480,000.

▲ **Wyo., Rawlins**—SCHOOL—Rawlins High School Dist. No. 3, voted $1,126,000 bonds Oct. 7, build and equip. high school. CD 9/28.

† **Alaska, Anchorage**—ARMORY—Alaska National Guard, Juneau, plans by E. B. Crittenden & Assoc., Anchorage, 28,500 sq. ft. armory. $600,000. CD 5/5/54.

COMMERCIAL BUILDINGS

▲ **Conn., Fairfield**—SHOPPING CENTER—Jadding Enterprises, 4000 Montgomery Dr., Santa Rosa, shopping center, incl. General Petroleum Service Station, Safeway Store Bldg. and misc. shops and stores, Fremont Village Shopping Center, $3,000,000.

▲ **Calif., San Diego**—OFFICE—Union Title Insurance & Trust Co., 1028 2 St., 3 story, 100,000 sq. ft., concrete, steel office bldg. $2,000,000.

▲ **Colo., Denver**—HOTEL—Boettcher Realty Co., 828 17th St., plans by William B. Tabler, archt.-consult. engr., 401 7th Ave., New York 1, N. Y. 14 to 21 story Brown Palace Hotel annex. $7,000,000. CD 10/17.

▲ **Conn., Stamford**—STORE, etc.—Coordinated Services, Inc., c/o Walter L. Maguire, 249 Strawberry Hill Ave., plans by Sternbach & Rheaume, 366 Atlantic St., 6 story, 200,000 sq. ft. store and office bldg. $2,000,000.

Ill., Chicago—MOTEL—Joner Realty Co., c/o Frank La Passo, archt., 8 S. Dearborn St., 60 unit Sands Motel addn., 5201 N. Sheridan Rd. $500,000.

▲ **Ill., Dolton**—HOMES—Cal Harbor Realty & Constr. Co., 125 homes, Marydale Manor subdivision, 146th St. and Woodlawn, $1,875,000.

Ill., East St. Louis—HOSPITAL, etc.—Christian Welfare Hospital, Dr. George H. Van Dusen, admin., 1509 Illinois Ave., remodeling center section of present building for administrative and storage use and erection of new 80 bed wing for medical surgical, maternity and chronic care cases of east side present bldg. $854,800. CD 12/28/54.

▲ **Ill., Elk Grove**—HOMES—Centex Constr. Co., 4606 Greenville St., Dallas, Tex., plans by A. J. Del Bianco, 5501 Irving Park Rd., Chicago, 6,000 homes, on 1500 acres of land, $175,000,000.

▲ **Mass., Boston**—OFFICE—Blue Cross & Blue Shield, 38 Chauncy St., plans by Rudolph Anderson, Beckwith & Haible, 11 Beacon St., office bldg., 127 Federal St., $2,500,000-3,000,000.

▲ **Mich., Waterford**—SEMINARY—Colombiere College, Detroit Province of the Society of Jesus, c/o Diehl & Diehl, archts., 120 Madison St., Detroit, Zone 26, 1 to 4 story, rein.-con., brick seminary, incl. chapel, dormitory, classrooms, and other bldgs. $3,500,000-$4,000,000. CD 12/1.

N. J., Erma—RESIDENTIAL DEVELOPMENT—Kath-Wyn Place, Inc., Att. Edwin T. Bradway, Erma, 75-unit residential development, $750,000.

N. J., Millburn—SHOPPING CENTER—Rector Holding Co., Millburn Ave., Short Hills, shopping center adjoining Chanticler Restaurant property on Millburn Ave., in Short Hills, section of Township, $500,000.

N. J., Moorestown—OFFICE—Union Carbide & Carbon Realty Co., 30 E. 42 St., New York, N. Y., and 12 S. 12th St., Phila., Pa. 2 story, 20,000 sq. ft. brick, stone office bldg. $500,000. Osborne Eng. Co., 7016 Euclid Ave., Cleveland, O., consult. engr.

▲ **N. J., Princeton**—ATOMIC RESEARCH CENTER—Princeton University, Princeton, N. J. and the University of Pennsylvania, Phila., Pa., atomic research center for the Atomic Energy Commission, $6,000,000. Gibbs & Hill, Inc., Penna. R.R. Station Bldg. New York, N. Y., consult. engr. CD 5/2, under Public Buildings.

N. J., Trenton—OFFICE, etc.—Louis Cahan, 140 W. State St., 5 story, masonry office bldg. and parking garage. $750,000-$1,000,000.

▲ **N. Y., Buffalo**—OFFICE—Irons & Reynolds, Inc., 420 Lexington Ave., New York, Zone 17, will not construct 19 story office, Main St. and Lafayette Square, $5,000,000. Project abandoned. CD 1/6.

▲ **N. Y., New York**—APARTMENT—Joseph P. Blitz, Inc., 50 E. 39 St., 12 story apartment, 12 Beekman Pl., S. W. corner of 50 St. $1,500,000.

▲ **N. Y., New York**—OFFICE, etc.—Diana Stores Corp., 320 W. 40 St., plans by David Levy, 70 E. 45 St., office and warehouse, 443-55 W. 40 St. and 440-52 W. 41 St. $1,000,000. CD 9/26.

▲ **N. Y., New York**—STUDENT FACULTY CENTER—Fordham University, Fordham Rd., plans by Voorhees, Walker, Smith & Smith, 101 Park Ave., New York, Zone 17, student faculty center on campus. $3,600,000. CD 9/14.

(Continued on page 100)

CHECK THESE IMPORTANT ADVANTAGES OF McConnaughay Asphalt Emulsions FOR ROAD-MIX PAVING JOBS

McCONNAUGHAY LICENSEES Operating K. E. McConnaughay Emulsified Asphalt Plants

1. Asphalt Products Co., Inc. Powell Ave., *Nashville 4, Tenn.*
2. C. C. Plumb, Elmwood Station P. O Box 65, *Providence 7, R. I.*
3. C. C. Plumb *Portland, Connecticut*
4. Albany Asphalt & Aggregates 75 State St., *Albany, New York*
5. Knight Paving Products, Inc. 1655 Union Rd., *Gardenville, N. Y.*
6. Knight Paving Products, Inc. Vine Street, *Ithaca, New York*
7. Knight Paving Products, Inc. 1980 East Avenue, *Rochester 10, N. Y.*
8. Knight-Bitumen Corp. *Watertown, New York*
9. Seaco, Incorporated 2700 Industrial Drive, *Columbia, S. C.*
10. E. A. Mariani—Emulsified Asphalt Hooker's Point, *Tampa, Florida*
11. Bituminous Materials Co. *Metairie, Louisiana* Serving Alabama, Mississippi, and Louisiana
12. Bituminous Materials Co. P. O. Box 267, *Terre Haute, Ind.*
13. Wabash Valley Asphalt Co. *Terre Haute, Indiana*
14. Brookman Construction Co. 17th & Gharkey Sts., *Muncie, Ind.*
15. Fauber Construction Co. *Lafayette, Indiana*
16. Asphalt Materials & Construction, Inc. 960 E. 22nd, *Indianapolis 2, Ind.*
17. Ready-Mix Asphalt, Inc. P. O. Box 882, *Fort Wayne 6, Ind.*
18. Walsh & Kelly R. R. #2, *Gary, Indiana*
19. Bituminous Materials Co. 416 S. Water St., *Jackson, Mich.*
20. Bituminous Materials Co. 318 Atlantic St., *Bay City, Mich.*
21. Emulsions, Inc. *Lawrenceville, Illinois*
22. Bituminous Materials & Supply Co. 415 Maple St., *West Des Moines, Iowa*

Plants:

23. *Spirit Lake, Iowa*
24. *Iowa City, Iowa*
25. *Menlo, Iowa*
26. Emulsified Asphalt Co. *Kuttawa, Kentucky*
27. Doherty and Swearingen Co. 53 Main St., *Yarmouth, Maine*
28. Bituminous Materials Co. *Escanaba, Michigan*
29. James Huggins & Sons, Inc. Medford & Commercial Sts. *Malden 48, Massachusetts*

Eastern Representative: John A. Dow 157 Church St., *New Haven 10, Conn.*

Above—Open-Graded Road Mix, Specification No. 3 . . . Indiana-State Highway; inset—Sand-Mix, Specification No. 8 . . . Guatemala, C.A.

Highly Water-Resistant in ALL Stages

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These superior emulsions *may be mixed with either wet or dry aggregates,* but give even better results when no water is added. They are little affected by water or rain during construction or after the paving is completed . . . not susceptible to drainage after mixing . . . have excellent adhesive qualities . . . assure quick compactibility after application. These features mean quicker, easier, better paving.

SPECIFICATIONS OF THESE COLD-MIX PROCESSES AVAILABLE ON REQUEST

1—Penetration Macadam, 2—Open-Graded Plant Mix, 3—Open-Graded Road Mix, 4—Dense-Graded Plant Mix, 5—Dense-Graded Road Mix, 6—Mat Coat, 7—Seal Coat, 8—Sand Mix, 9—Sand Honing, 10—Patching, 11—Mastic-Mix, 12—Driveway Construction.

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(Continued from page 98)

N. Y., New York—DORMITORY—Rockefeller Institute for Medical Research, York Ave. and 65 St., plans by Harrison & Abramovitz, 630 Fifth Ave., dormitory at site, $894,610. CD 12/20.

N. C., Greensboro—OFFICE—Blue Bell, Inc., Jefferson Bldg., 2 floors, 60,000 sq. ft. office bldg. $500,000.

O., Akron—APARTMENT—Westate Realty Co., 39 E. Market St., 5 story, bsmnt. co-operative apartment. $675,000.

▲ **O., Charden** — EDUCATIONAL CENTER — Sisters of Notre Dame, 1325 Ansel Rd., Cleveland, Zone 6, 4-wing educational center, 300-acre site, Bass Lake Rd. $1,000,000.

▲ **O., Cincinnati**—HIGH SCHOOL, etc.—St. Xavier High School, 635 Sycamore St., plans by A. V. Walters, 105 W. 4 St., high school, stadium and rectory. $3,500,000. Bids summer 1957.

▲ **O., Columbus**—POST OFFICE—U. S. Post Office Dpt., 12 St. and Pennsylvania Ave. N.W., Wash. 25, D. C., 3 story, 332,000 sq. ft. bulk mailing post office, Columbus Civic Center. $10,000,000.

▲ **Okla., Tulsa**—SHOPPING CENTER—Mazingo Village, Inc., 71st St. at Harvard, plans by Paul Murphy, Arcade Bldg., multiple shopping center, 71st and Harvard Sts. $1,000,000.

▲ **Pa., Phila.**—Owner, c/o Bellante & Clauss, archts., Rittenhouse Savoy, Phila., 7 story, 173,000 sq. ft. post office, vehicle service and maintenance bldg. $1,805,000. CD 6/23/55, under Public Buildings.

Pa., Pittsburgh—CHURCH—Westminister Presbyterian Church, 2040 Washington Rd., plans by Harold E. Wagoner, Architects Bldg., Phila., 2 story, brick, block church addn., upper St. Clair Twp. $500,000.

▲ **S. C., Beaufort**—HOUSING—Dist. P. Wks. Office, Sixth Naval Dist., Bldg. 12, U. S. Naval Base, Charleston, plans by Reid Hearn & Assocs., archts.-consult. engrs. 600 Beltline Blvd., Columbia, construct and finance, 256 unit housing, Marine Corps Auxiliary Air Station. $2,560,000.

S. C., Charleston Heights—SHOPPING CENTER—Edward Kronsberg & Assoc., 517 King St., Charleston, shopping center. $750,000.

▲ **Tex., Fort Worth**—OFFICE—Southwestern Bell Telephone Co., 716 Main St., plans by Wyatt C. Hedrick Co., 1200 T & P Bldg., 9 story, brick, tile, concrete, steel building for offices and business bldg., 10, 11, Houston and Throckmorton Sts. $3,000,000.

▲ **Tex., Fort Worth**—DORMITORIES—Texas Wesleyan College, TWC Campus, Fort Worth, plans by Wiatt C. Hedrick, archt.-engr., T & P Bldg., two dormitories. $1,000,000. CD 5/11.

Tex., Houston—OFFICE—American Capitol Insurance Co., c/o Joseph B. Reynolds, archt., 2428 Times Blvd., office, 2½ acre tract, 3839 Buffalo Speedway, $750,000.

▲ **Tex., Waco**—OFFICE—Owners, c/o Asher & Sander Lowich Real Estate Co., Professional Bldg., 23 story office. $3,500,000.

▲ **Tex., Weslaco**—HOSPITAL—Southwest Texas Methodist Conference, c/o J. Frank Smith, 1049 Kirby Dr., Houston, 75-100 bed general hospital, 20-acre site. $1,500,000.

▲ **Utah, Ogden**—BANK—Commercial Security Bank, Robert C. Hemingway, pres., 2453 Washington Blvd., bank bldg. 25 and Washington Blvd. $2,000,000. Pereira & Luckman, 9220 Sunset Blvd., Los Angeles, Calif., consult. engrs.

Wash., Seattle—APARTMENT—Union St. Corp., 1400 Hubbel Pl., plans by Miller & Ahlson, 1410 Hubbel Pl., apartment addn. $700,000.

Ont., Mimico—APARTMENT—Sam Panet, c/o Panet Electric Co., Ltd., 3011 Dundas St. W., Toronto, plans by Venchiarutti & Venchiarutti, 194 Wilson Ave., Toronto, 80 unit apartment, 2 Church St., 10 story, steel, concrete constr., underground parking, $600,000. Constr. early in 1957.

▲ **Que., Montreal**—OFFICE, etc.—Owner, c/o McCauley Realties & Co., 330 Victoria Ave., two office bldgs., each 4 story bsmnts. approx. 10,000 sq. ft. per floor; 10 apartments, 4 storys on north side, 3 storys on southside Linton Ave. between Cote des Neiges Rd. and Decelles Ave., on 180,000 sq. ft. site. $1,500,000. Bids spring 1957.

INDUSTRIAL BUILDINGS

▲ **Ark., Fayetteville**—FACTORY—Standard Register Co., 626 Albany St., Dayton, O., 64,000 sq. ft. bldg. expansion to 120,000 sq. ft. (planned later) factory will produce autographic register and feeding devices for business machines. $3,000,000.

Conn., Millidale—MILL—Scovill Mfg. Co., P. O. Box 1820, Waterbury, tube mill $500,000. Emory K. Rogers, ch. engr.

▲ **Iowa, Sioux City**—WAREHOUSE—Super Valu Stores, Inc., 101 Jefferson Ave. S., Hopkins, Minn., 1 story 150,000 sq. ft. warehouse, Milwaukee Rd., near Riverside and Paul' Aves. $1,125,000.

▲ **Mich., Ferndale**—PLANT—Republic Steel Corp., Republic Bldg., Cleveland, O., expansion of steel and tubes division plant, constr. bldg., installation equip. for production of "Electrunite" light wall conduit tubing, $3,000,000.

▲ **N. J., Morristown**—WAREHOUSE—Public Service Electric & Gas Co., 80 Park Pl., Newark, warehouse. $2,000,000.

Okla., Ponca City—LABORATORY—Continental Oil Co., Ponca City, atomic radiation laboratory. $500,000. CD 1/4/52.

Okla., Tulsa—FABRICATING PLANT—Warner & Lewis, 817 N. Lewis St., plans by Hugh Humphries, Atco Bldg., steel fabricating plant, N. 9 and Lewis Sts. $500,000.

▲ **Tex., Houston**—WAREHOUSE—Westinghouse Electric Corp., 507 Dallas St., 60,000 sq. ft., fireproof warehouse, $2,000,000; 160,000 sq. ft., fireproof warehousing $7,500,000. off Produce Row St.

Tex., Houston—WAREHOUSE—White's Stores, Inc., Wichita Falls, central warehouse. $750,000.

▲ **Wis., Cassville**—POWER PLANT—Wisconsin Power & Light Co., 122 W. Washington St., Madison, brick, concrete, steel structures power plant, $3,591,550; boiler plant, $8,242,311; turbine plant, $4,241,979; electric plant, $1,406,283; power plant equip., $383,069; sub-station, $938,093. Bids next spring. Sargent & Lundy, 140 S. Dearborn St., Chicago, Ill., consult. engrs.

▲ **Wis., LaCrosse**—FACTORY—Trane Co., 206 Cameron Ave., 60,000 sq. ft. factory bldgs. to mfg. air-cond. compressors and 24,000 sq. ft. for 2nd stage of new test center, $1,000,000.

UNCLASSIFIED

▲ **California**—NATURAL GAS PIPELINE—Pacific Gas & Electric Co., 245 Market St., San Francisco, 200 mi. 12 in. natural gas pipe line from fields in North Central California to the Northern Coastal area, Humboldt Bay; supplementing a local source of natural gas, Tompkins Hill Field, which serves the Humboldt Bay Area, Humboldt Co. $9,500,000.

▲ **Colorado**—RURAL DISTRIBUTION LINES—Delta County Co-operative Telephone Co., Delta, transmission lines, incl. moving wires between Eckert and Cedaredge, install dial system, Delta, Gunnison and Montrose Counties. $1,360,000.

Conn., Stamford—BEACH UTILITY BLDG.—City, City Hall, beach utility bldg. sea wall promenade, park imprvs., Cummings Park and Cummings Park Beach. $675,000. Brown & Blauvelt, 468 Fourth Ave., New York, N. Y., consult. engrs.

▲ **Conn., Stamford**—RECREATION AREA—City, City Hall, development of Cove Island as public recreation area, $1,600,000. Brown & Blauvelt, 468 Fourth Ave., New York, N. Y., consult. engrs.

Kansas—RURAL DISTRIBUTION LINES—Radiant Electric Co-operative Fredonia, 39 mi. rural distr. lines, new headquarters, Wilson Co. $515,000. Flora Eng. Co., 56 and Holly St., Box 234, Denver, Colo., consult. engr. CD 10/15.

▲ **Ky., Burlington**—RACE TRACK—Kentucky Jockey Club, Churchill Downs, race track, Boone Co. $4,000,000-$5,000,000.

▲ **Missouri**—RURAL DISTRIBUTION LINES—M & A Electric Power Co-operative, Poplar Bluff, 78 mi. 69 KV rural distr. lines, 4 new sub-stations, headquarters facilities, Ripley Co. $1,006,000, Stanley Eng. Co., Musctine, Iowa, engr. CD 4/3.

▲ **Mo., St. Louis**—STREET LIGHTING—City, Frank J. McDevitt pres. Bd. Pub. Serv., 304 City Hall, 12th Blvd. and Market St., installing street lighting facilities on 17½ mi. streets, incl. all of Kings Highway and Vandeventer Ave. and on Gravois Ave. from Grand Blvd. to western city limits. $1,075,000. Sverdrup & Parcel, Inc., 917 Olive St., St. Louis, Zone 1, consult. engr. CD 5/31/55.

N. Y., Hamburg—RECREATION FACILITIES—Bethlehem Steel Co., 25 Broadway, New York, recreation facilities for supervisory employees, incl. swimming pool, golf course and driving range, club house, on 400 acre site. $550,000. To go ahead in the Spring.

▲ **O., Parma**—PARK IMPRVS.—City, Fred Newcomb, Serv. Dir., City Hall, 6611 Ridge Rd., Cleveland, Zone 29, $1,500,000 bond election Nov. 6, park imprvs. CD 7/24.

O., Toledo—STADIUM—Lucas Co. Bd. Educ., Courthouse, tax levy at Nov. 6 election to finance, athletic stadium. $900,000.

Oklahoma—RURAL DISTRIBUTION LINES—Kay Electric Co-operative, Blackwell, 60 mi. rural distr. lines and sub-station, at Blackwell, Kay Co. $564,000. C. H. Guernsey & Co., 2701 N. Oklahoma St., Oklahoma City, consult. engrs. CD 2/28/49.

Pa., Allentown—DUAL ELECTRIC SERVICE—General State Auth., 18 and Herr Sts., Harrisburg, dual electric service and distr. sys., Allentown State Hospital. $550,000. Albert E. Peters Assoc., 216 North Ave., Scranton, consult. engrs. CD 3/1.

Texas—RURAL DISTRIBUTION LINES—Bailey Co. Elec. Co-operative Assoc., Muleshoe, 142 mi. electric dist. line, 11 mi. 69 KV transmission line and sys. imprvs. $700,000. CD 10/20/53.

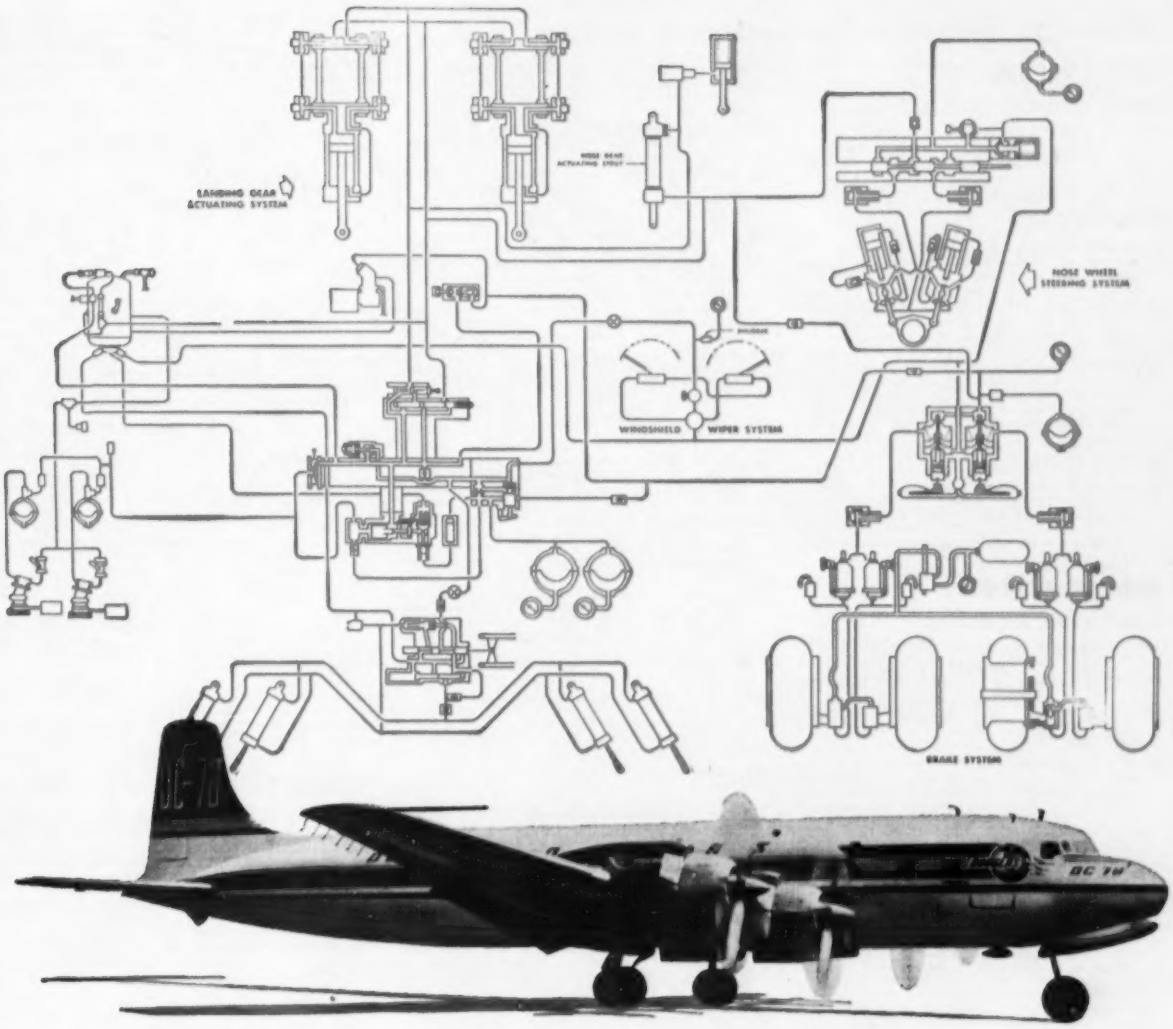
Tex., Amarillo—LIGHTING—City, City Hall, street lighting program. $500,000. Carl C. Cox, Barfield Bldg., consult. engr.

▲ **Tex., Bryan**—RURAL DISTRIBUTION LINES—City, City Hall, voted $1,350,000 bonds Oct. 9 for extension of REA lines and facilities. CD 9/26.

Tex., Muleshoe—RURAL DISTRIBUTION LINES—Bailey Co. Electric Co-operative, Muleshoe, REA lines, incl. trans. lines, sys. imprvs. $700,000.

▲ **Que., Montreal**—RECREATION CENTER—City, City Hall plans by David & David, 7020 Cote des Neiges Rd., recreation center, Marquette Park, Rosemount. $1,500,000.

▲ **Que., Three Rivers**—WHARF—National Harbors Bd., Parliament Bldgs., Ottawa, Ont., wharf, Section 20, Three Rivers Harbor, $1,000,000. Exploratory soundings awarded to Racey, MacCallum & Assocs. Ltd., 5890 Monkland Ave., Montreal, Que. CD 10/28/48.



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NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAYS LETTINGS
BRIDGES
November 5 Connecticut
STREETS AND ROADS
November 6 Massachusetts

BUILDINGS—BA

▲ **Maine**—HOUSING—BA 11/23—U. S. Eng., 150 Causeway St., Boston, Mass. construct and finance, Capehart family housing, 64 units—on site imprvs. for Loring Air Force Base, Defense Area at Caribou-Caswell, Connor and Limestone. $1,506,000. Plans deposit $10. CD 10/22.

HEAVY CONSTRUCTION—LB & CA

▲ **Merritt-Chapman & Scott Corp.**, 260 Madison Ave., New York, N. Y., LB $3,271,063 (5 bidders) South Windsor-Windsor Bridge across Connecticut River, South Windsor-Windsor, HARTFORD, CONN. Hartford Bridge Auth., 284 Sheldon St., Hartford, Conn. Bids Oct. 2.

BUILDINGS—LB & CA

▲ **Paul Livoli, Inc.**, 360 Lexington Ave., Watertown, Mass. Owner Builds. Approx. $2,000,000. RESIDENTIAL DEVELOPMENT, "East View Park," 170 houses, Forest St., 60 acre plot, WALTHAM, MASS. Christopher Crowell, 120 Atwood Ave., Newton, Mass., archt.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAYS LETTINGS
BRIDGES
November 8 Maryland — November 9 Pennsylvania
STREETS AND ROADS
November 8 Maryland — November 9 Pennsylvania

BUILDINGS—BA

▲† **N. Y., Brookhaven**—BUILDINGS, etc.—BA 11/27—Stone & Webster Engineering Corp., for Brookhaven National Laboratory, Associated Universities, Inc., Upton, L. I., alternating gradient synchrotron at Brookhaven National Laboratory, incl. 25,000 sq. ft., 50 ft. high target bldg., 7,000 sq. ft. Linac Bldg., 5 small air-conditioning penthouses, 6,000 ft. underground pressure piping, constr. 4 well houses, installing concrete access tunnels, road network, large paved parking areas, for AEC, $2,600,000. CD 10/26/55.

HEAVY CONSTRUCTION—LB & CA

▲ **NEW YORK**—Dpt. P. Wks., The Gov. Alfred E. Smith State Office Bldg., Albany,
The Arthur A. Johnson Corp. & Peter Kiewit Sons Co., 347 Madison Ave., New York 17, N. Y., CA $5,767,495, concrete substructure work on State Thruway's mile-long $20 million bridge across Hudson River, approx. 1⅛ mi. south of Selkirk and Castleton in Albany and Rensselaer Counties. Bids Sept. 27. CD 10/2, under LB.

▲ **NEW YORK**—Dpt. P. Wks., The Gov. Alfred E. Smith State Office Bldg., Albany,
N. Y.—**D. A. Collins Constr. Co., Inc.**, Box 191, Mechanicville, N. Y., CA $1,018,707. constr. 2.49 mi. sect. north-south arterial route (Rte. 57) and 0.42 mi. access roads, city of Fulton, Oswego Co.
N. Y.—**The Lane Constr. Corp.**, 965 E. Main St., Meriden, Conn., CA $3,940,306, const. 313 mi. four-laned divided portion of State Thruway's proposed 24 mi. Berkshire Sect. that will eventually link the thruways main 427 mi. New York to Buffalo Rte. with Massachusetts Turnpike. B. T. 56-1, S. T. 56-8, Rensselaer Co.; CA $3,580,463, constr. northeastern outskirts of Rochester of 2.53 mi. four-lane divided sect. of Sea Breeze Expressway from south end of already completed Expressway segment north of Ridge Rd., southward on new location across Ridge Rd., Bayview Rd. and Empire Blvd. to Winton Co. FASH. 56-7, FASH, 56-8; FARC 56-76, Monroe Co. Grand total $8,539,476. Bids Sept. 27. CD 10/2 under LB.

BUILDINGS—LB & CA

▲ **409 East 63 St. Corp.**, c/o Brown & Guenther, archts., 1860 Broadway, New York 23, N. Y. Owner Builds. $1,500,000. 153 APARTMENT units, 405 E. 63 St., NEW YORK, N. Y.

▲ **Hegeman-Harris Co. Inc.**, 30 Rockefeller Plaza, New York, N. Y. CA Est. $4,000,000. 3 story, 135,000 sq. ft. penthouse American HEADQUARTERS BLDG., Bloomingdale Rd., incl. terraced parking lot for 300-cars, WHITE PLAINS, N. Y. The Nestle Co., Inc., 2 William St., White Plains, N. Y. Eggers & Higgins, 100 E. 42 St., New York, N. Y., archts.

▲ **Industrial Eng. Co.**, 50 Church St., New York, N. Y., CA $2,000,000. 8 story OFFICE, Bridge Plaza, FORT LEE, N. J. National Publishing Co., 15 W. 44 St., New York, N. Y. Lester Cohen, 234 Clinton Pl., Hackensack, N. J., archt. Awarded Oct. 23.

▲ **Biltman & Tischler**, 101 Park Ave., New York, N. Y., CA, $1,300,000. second section 112-units of APARTMENT BLDGS., Franklin Blvd. and Phillips Rd., FRANKLIN TWP. (P.O. NEW BRUNSWICK), N. J. Dewey Albert, 185 Montague St., Brooklyn 2, N. Y. William Chirgotis, 968 Stuyvesant Ave., Union, N. J., archt.

▲ **Frank Yurchuch**, River Rd., Milltown, N. J., Owner Builds, $1,400,000 67 HOUSES, Milltown Rd., Hillsborough Twp., MILLTOWN, N. J.

▲ **Park Estates, Inc. (Harry Spiegiman)**, 12 Elm St., Morristown, N. J., Owner Builds, $1,400,000. 70 HOUSES off Route 202 between Highways 10 and 46, PARSIPPANY-TROY HILLS, N. J.

▲ **Rose Haven Estates, Inc.**, (Martin Sobel, pres.) Quaker Church Rd., Dover, N. J. Owner Builds. $1,800,000. 94 HOMES, off Route 10 Rose Haven Estates, RANDOLPH TWP., N. J. Erwin Gerber, 11 Commerce St., Newark 2, N. J., archt.

Mt. Vernon Corp., 7917 Ogontz Ave., Phila., Pa. Separate Contracts. $1,600,000. RESIDENTIAL DEVELOPMENT, 80 units, Haws Lane, FLOURTOWN, PA.

▲ **Owner**, c/o Max Haupt, engr., 229 N. 60 St., Phila., Pa. Separate Contracts. $2,000,000. 1 and 2 story, brick, steel, 280,000 sq. ft. MANUFACTURING BLDG., PHILA., PA. CD 5/23.

▲ **Levitt & Sons, Inc.**, Levittown, Pa. Separate Contracts. $5,000,000. RESIDENTIAL DEVELOPMENT, 140 units, Conestoga Rd., ROSEMONT, PA.

▲ **John J. McGroarty**, 8034 York Rd., Elkins Park, Pa. Separate Contracts. $4,810,000. RESIDENTIAL DEVELOPMENT, 481 units, Maple Ave., SOUTHAMPTON, PA.

▲ **U. S. Eng.**, 24 St. and Maryland Ave., Baltimore 18, Md. cancelled bids to have been opened Oct. 17, armed services HOUSING proj., 198 units, (Capehart), Fort Holabird, ENG-18-020-57-4, BALTIMORE, MD. CD 9/25.

▲ **A. Kaplen & Sons, Ltd.**, 100 Huguenot Ave., Englewood, N. J. and **S. Singer & Sons**, 80 Huguenot Ave., Englewood, N. J. LB $14,716,070 base bid, $16,068,330 additive bid, construct and finance Armed Services HOUSING, 1,000 units (Capehart), FORT GEORGE G. MEADE, MD. U. S. Eng., 24 St. and Maryland Ave., Baltimore 18, Md. CD 10/9, under LB.

▲† **Office of Architect**, U. S. Capitol, Wash., D. C., rejected bids Oct. 3, CAFETERIA BLDG. in courtyard of existing New House Office Bldg. of U. S. House of Representatives, WASH., D. C. LB $1,883,745. CD 10/5, under LB.

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAYS LETTINGS
BRIDGES
November 8 Florida
STREETS AND ROADS
November 8 Florida — November 9 Kentucky

BUILDINGS—SLC

▲ **La., Fort Polk**—HOUSING—U. S. Eng., Box 1229, Galveston, Tex., soon lets contract construct and finance, 1 and 2 story housing, 2,000 units, (Capehart), ENG-41-243-57-8, $15,000,000. Extended date. CD 10/9.

BUILDINGS—LB & CA

▲ **Edgewater Constr. Co.**, c/o A. J. Thomas, Sea-Aire Motel, Cocoa Beach, Fla. Owner Builds. $7,500,000. 600 RESIDENCES, COCOA BEACH, FLA. John A. Tripp, 6440 S.W. 16 Terrace, West Miami, Fla., archt. C. C. Jobe & Assoc., Merritt Island, Fla., engrs.

▲ **Foster & Creighton Co.**, American Natl. Bank Bldg., Nashville, Tenn., CA, $4,500,000. 6 story, 350,000 sq. ft. with 210,000 sq. ft. selling space DEPARTMENT STORE, NASHVILLE, TENN. Allied Stores, Inc. (The Cain-Sloan Co.), 209 5 Ave. N., Nashville, Tenn., Marr & Holman Architects & Engineers, Inc., Stahlman Bldg., Nashville, Tenn., archt. Awarded Oct. 19. CD 8/4/55.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAYS LETTINGS
BRIDGES
November 14 Michigan
STREETS AND ROADS
November 8 Michigan

HEAVY CONSTRUCTION—LB & CA

▲ **OHIO**—State Hy. Dpt., Columbus, Zone 15,
O.—**C. F. Replogle Co.**, 122½ N. Court St., Circleville, O. LB $3,148,976, est. $3,773,500 (11 bidders) Type T-71 and structures 6.061 mi. USR 40-16.80, I-610 (18), Village of St. Clairsville, Proj. No. 436, Belmont Co.;
O.—**Bates & Rogers Constr. Corp.**, 600 W. Jackson Blvd., Chicago, Ill., LB $7,805,139, est. $7,594,800 (4 bidders) Type T-71 and structures 1.443 mi. USR 42R-19.78, I-1057 (3), City of Cleveland, Proj. No. 437, Cuyahoga Co.;
O.—**Robert J. Dienst & Son**, 297 S. High St., Columbus, O. LB $271,998, est. $284,900 (4 bidders) type T-35, 2.325 mi. SCR No. 122, S-1206 (1), City of Columbus, Proj. No. 438, Franklin Co.;
O.—**Claude A. Janes, Inc.**, 413 Peoples Bank Bldg., Marietta, O., LB $108,914, est. $124,600 (6 bidders) Type T-32 on B-119 and culverts 0.587 mi. SR 124-(43.52) (49.38), S-29 (4), Proj. No. 439, Meigs Co.;
O.—**D. R. Smalley & Sons, Inc.**, 436 W. Market St., Celina, O., LB $4,698,862, est. $5,486,500 (9 bidders) Type T-71 and structures 10.522 mi. USR 40-16.16. I-IN 1097 (2), Proj. No. 440, Montgomery Co.;
O.—**V. N. Holderman & Sons, Inc.**, 890 Oakland Park Ave., Columbus, O., LB $3,070,917, est. $3,351,500 (7 bidders) Type T-71 and structures, 6.23 mi. USR 21-12.39, F-1010 (4), City of Massillon, Proj. No. 441, Stark Co.;
O.—**The Great Lakes Constr. Co.**, Box 2278, Brooklyn Station, Cleveland, O., LB $263,019, est. $263,700 (2 bidders) Type T-35 3.193 mi. SR 608-(1.71) (5.49-8.51), Proj. No. 442, Geauga Co.;
O.—**Harper Supply, Inc. & Miller Brothers, Inc.**, 118 W. Front St., Napoleon, O., LB $1,361,736, est. $1,558,000 (7 bidders) Type T-35 on B-20 and structures 4.831 mi. USR 68-11.47, City of Findlay, Proj. 443, Hancock Co.;
O.—**W. J. Elliott & Sons**, Rte. No. 4, McConnelsville, O. LB $82,167, est. $107,700 (7 bidders) Type T-32 on B-119 and culvert, 0.7 mi. SR 146-13.00, Proj. No. 445, Noble Co. Bids Oct. 16. CD 9/27.

▲ **ILLINOIS**—Dpt. P. Wks. & Bldgs., Div. Hys., Centennial Bldg., Springfield,
Ill.—**Standard Paving Co.**, 308 W. Washington St., Chicago 6, Ill. LB $201,864. c. conc. base, b. conc. resurf. 0.32 mi. U. S. 34 and US 64, Cook Co.; LB $183,175, b. conc. resurf., median constr. 1.91 mi. FA 133, Cook Co.;
Ill.—**Princeville Stone Co.**, Princeville, Ill. LB $149,923. bit. surf. 4.56 mi. FAS 216, Henderson Co.; LB $265,452 grav. or crushed stone base course 7.14 mi. F.A. 38, Pike Co.;
Ill.—**Arcole Midwest Corp.**, 3225 Main St., Evanston, Ill. LB $134,644. b. conc. resurf. 2.54 mi. Ill. 21, District 10;
Ill.—**J. D. Barter Constr. Co.**, 215 S. Jackson St., Harrisburg, Ill. and **Franklin Asphalt Co.**, Benton, Ill. LB $123,242. bit. surf. 3.78 mi. F.A.S. 927, Johnson Co.;
Ill.—**R. A. Cullinan & Son, Inc.**, Tremont, Ill. LB $363,590. b. conc. base course wid'n., b. conc. resurf. 7.76 mi. U. S. 150, Woodford Co.;
Ill.—**Coggeshall Constr. Co.**, Clayton, Ill. LB $295,721. macad. base course 3.38 mi. c.b.c. wid'n. 1.63 mi. gran. embankment 0.07 mi. U. S. 24, Brown and Adams Counties;
Ill.—**Gem Contg. & Paving Inc.**, Moose Bldg., Quincy, Ill. LB $145,177. b. conc. resurf. 7.2 mi. F.A. 38, Pike Co.;
Ill.—**General Paving Co., Inc.**, 30 E. John St., Champaign, Ill. LB $2,647,348. c. conc. paving 3.71 mi. conc. ramps, conc. base course 1.17 mi., bit. resurf., all on U. S. 45, Champaign Co.;
Ill.—**Kelly Bros. Constr. Co., Inc.**, 4211 State St. East St. Louis, Ill. LB $162,579. b. conc. resurf. 2.23 mi. Ill. 111, Madison Co.;
Ill.—**Leininger Constr. Co.**, 30 N. La Salle St., Chicago, 2, Ill., LB $765,516. c. conc. base course 3.27 mi. S.B.I. 46, Cook Co.;
Ill.—**Madison Constr. Co.**, P. O. Box 222, Edwardsville, Ill., LB $275,648. b. conc. surf. 1.01 mi. Alt. U. S. 67, Madison Co.;
Ill.—**Mautz & Oren, Inc.**, 109½ Banker St. Effingham, Ill., LB $304,001. c. conc. base course 0.96 mi. and b. conc. resurf. 1.57 mi. Ill. 33 and 130, Jasper Co.;
Ill.—**McDougal Hartmann Co.**, 1500 N. Adams St., Peoria, Ill., LB $411,843, c. conc. base course wid'n. 8.55 mi. and c. conc. base course 1.66 mi. Ill. 2, Whiteside Co.;
Ill.—**Mitchell Constr. Co.**, 216 E. Madison St., Herrin, Ill., LB $141,573, c. conc. base course wid'n. 0.6 mi. b. conc. resurf. Ill. 15, Jefferson Co.;
Ill.—**C. J. Moritz, Inc.**, Register Bldg., Effingham, Ill., LB $267,937. c. conc. base course and b. conc. resurf. 1.16 mi. U. S. 50, Lawrence Co.;
Ill.—**Municipal Paving Co.**, 5757 Ogden Ave., Cicero, Ill., LB $157,566. b. conc. resurf. 3.5 mi. S.B.I. 46, Cook Co.;
Ill.—**Rein & Schultz, Inc.**, 119 E. Washington Ave., Madison, Wis., LB $156,710. b. conc. resurf. 10.27 mi. Ill. 2, Whiteside Co.;
Ill.—**Skokie Valley Asphalt Co., Inc.**, 1228 Harding Ave., Des Plaines, Ill., LB $98,860. intermittent b. conc. resurf., patching 3.95 mi. Ill., 42, 59, 59A and 176, Lake Co.;
Ill.—**Swords & Dietz**, 107 S. Jefferson Ave., Peoria, Ill., LB $255,199. grav. or crushed stone surf. 2 bridges 5.55 mi. FAS 1456, Fulton Co.;
Ill.—**Triangle Constr. Co.**, 480 N. Evergreen Ave., Kankakee, Ill., LB $196,555. c. conc., reconstr. 1 bridge 0.6 mi. S.B.I. 13, Jackson Co.;
Ill.—**E. A. Meyer Constr. Co.**, 1539 Morow Ave., North Chicago, Ill., LB $358,347. c. conc. paving, c. conc. base course b. conc. surf. 0.86 mi. U. S. 66, Will Co.;
Ill.—**M. Hoeffken Co. & Hoeffken Bros., Inc.**, 222 West "B" St., Belleville, Ill., LB $368,372. c. conc. 1.83 mi. Ill. 3, Randolph Co. Bids Oct. 23. CD, 10/15.

▲ **ILLINOIS**—Div. Hys., Centennial Bldg., Springfield, **Industrial Constr. Co.**, 3050 4 Ave. S., Minneapolis, Minn., CA, $1,108,846. structural steel for girder bridge over Illinois River at Peoria, Peoria and Tazewell Counties. Bids Sept. 28. CD 10/2, under LB.

▲† **Mary Constr. Co., Inc.**, Cape Girardeau, Mo., LB $1,586,499, est. $2,145,228 (6 bidders) dam, Devil's Kitchen Dam, Williamson Co., CIVENG-23-065-57-25, ILLINOIS. U. S. Eng., 420 Locust St., St. Louis 2, Mo. Bids Oct. 19. CD 9/17.

▲ **Kenny Constr. Co.**, 3220 Oakton St., Skokie, Ill., CA, $4,586,050. Calumet Skyway Toll Bridge Contract 4-B-2, comp. structure except structural steel bridges over 87 and Kingston Sts., drainage, paving, toll booths, rest. streets, sewers, N. side 87 to Colfax Sts., CHICAGO, ILL. City, City Hall., Chicago, Ill. Bids Sept. 13. CD 9/18, under LB.

▲ **Arcole-Midwest Corp.**, 3225 Main St., Skokie, Ill., LB $3,377,796, Calumet Skyway Toll Bridge, Section

1-A-2, comp. structures, drainage, paving Keefe Ave. to 79 St., CHICAGO, ILL. City, City Hall, Chicago, Ill. Bids Oct. 23. CD 10/3.

▲ **Michael Pontarelli,** 4248 N. Kilpatrick Ave., Chicago, Ill., LB **$1,541,791.** Contr. 3, sewer constr. Wrightwood Ave. system, CHICAGO, ILL. City, City Hall, Chicago, Ill. Bids Oct. 22. CD 10/3.

▲ **WISCONSIN**—State Hy. Comn., State Office Bldg., Madison,

Wis.—**James Cape & Sons Co.,** 701 Water St., Racine, Wis., CA, **$1,049,337.** grading, base, c. conc. 4.056 mi. U.S. Hy. 141, F-077-1 (9), F 01-2 (18) and F 01-3 (23), Milwaukee and Ozaukee Counties;

Wis.—**Arthur Overgaard Co.,** Elroy, Wis., CA, **$758,862,** grading, base, structures 15.238 mi. S.T. Hy. 13, F 04-3 (16) and F 04-4 (25), Adams and Wood Counties;

Wis.—**A. F. Keyes Co.,** 1232 Fairview Ave., South Milwaukee, Wis., LB **$940,346.** grading, ballast, base, structures 3.475 mi. F 06-1 (8) and In 102-1 (2), Waukesha Co.;

Wis.—**Dixon Constr. Co.,** Albany, Wis., CA, **$896,736,** grading, ballast, base, structures 11.589 mi. S.T. Hy. 29, F 020-2 (16), Marathon Co.;

Wis.—**Garrett Constr. Co., Inc.,** 2354 Pennsylvania Ave., Madison, Wis., CA, **$196,670.** bit. conc. 0.691 mi. U.S. Hy. 16, Proj. T 05-2 (15), Columbia Co. Bids Oct. 16. Grand total $3,843,951. CD 10/19, under LB.

BUILDINGS—LB & CA

▲ **Ragnar Benson, Inc.,** 4744 W. Rice St., Chicago, Ill., CA, **$4,000,000.** 2 TECHNICAL PLANT OFFICES, 2 RESEARCH BLDGS., 129 St. and Indianapolis Bldg., WHITING, IND. Standard Oil Co. of Indiana, 119 and Front Sts., Whiting, Ind., Skidmore, Owings & Merrill, 100 W. Monroe St., Chicago, Ill., archts.

▲ **Wm. Q. Drake,** 115 W. Hines Ave., Peoria Heights, Ill., CA, **$3,500,000.** 1 story, 150,000 sq. ft. box mfg. PLANT, 144 and Indiana Ave., DOLTON, ILL. Container Corp. of America, 38 S. Dearborn St., Chicago, Ill. Bids Aug. 27. CD 8/27.

▲ **Spence Brothers,** 417 McKoskry St., Saginaw, Mich. CA Est. **$1,900,000.** Fluids Engineering Bldg., Proj. No. 78, ANN ARBOR, MICH. The Regents of University of Mich., W. K. Pierpont, vice pres., Plant Service Bldg., Ann Arbor, Mich. Bids Oct. 11. CD 9/12.

▲ **Malpeli Constr. Co.,** 28980 Inkster Rd., Southfield 19, Mich. Owner Builds. **$3,700,000,** 123 brick HOMES, 12-Mile Rd., west of Northwestern, west of BERKLEY, MICH.

▲ **Northview Constr. Co.,** 10419 Fenkell St., Detroit 38, Mich. Owner Builds. **$1,500,000.** 80 brick HOUSES, Maxwell St., west of Fort St., TRENTON, MICH.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

STATE HIGHWAYS LETTINGS
BRIDGES
November 8 Kansas November 14, 15 Texas
STREETS AND ROADS
November 8 Kansas November 14, 15 Texas

▲ **Mo., Moberly**—BA 11/15—City, K. L. Bolin, mgr., City Hall, dam, repairs city filter plant, extens. to water distr. sys., storm and sanitary sewers $1,499,000. Plans deposit $15. Stanley Eng. Co., Hershey Bldg., Muscatine, Iowa, engr. CD 10/16.

▲† **South Dakota**—BA On Or About 12/4—U. S. Eng., 1709 Jackson St., Omaha 2, Neb., Spillway Earthwork, Stage II, approx. 15,500,000 cu. yd. excav. and wasting of overburden and shale, Oahe Reservoir Proj., near Pierre, CIVENG-25-066-57-44. CD 5/25/44.

BUILDINGS—BA

▲† **N. M., Albuquerque**—OFFICE—BA 12/11—General Services Admin., Denver Federal Center, Denver, Colo. 8 story, 142x300 ft., concrete steel federal office, $5,575,000. CD 10/22.

▲† **Tex., Dallas**—BUILDINGS ALTERATIONS—BA 12/18—Veterans Admin., Munitions Bldg., Wash. 25, D. C., altering Buildings 1, 2, 3, and 4, Veterans Administration Hospital. CD 10/15.

▲ **Tex., Houston**—PLANT, etc.—Bids Asked—Jefferson Lake Sulphur Co., San Jacinto Bldg., expansion of Merichem's ship channel plant in Greens Bayou, $2,000,000; petrochemical plant, $3,500,000; plant area storage or warehousing, $150,000. CD 10/23.

BUILDINGS—SLC

▲ **Colo., Denver**—PLANT—Air Products Inc., Dpt. T, Box 538, Allentown, Pa., soon lets contract liquid oxygen plant. $2,810,000. Daniel Mann, Johnson & Mendenhall, 3325 Wilshire Blvd., Los Angeles, Calif., engrs.-archts. CD 9/25.

HEAVY CONSTRUCTION—LB & CA

▲† **Baldwin-Lima-Hamilton Corp.,** Phila. National Bank Bldg., Phila., Pa., CA **$2,569,200,** turbine pumps for Garrison Dam and Reservoir Proj., near Riverdale, Inv. 32-015-57-7, NORTH DAKOTA. U. S. Eng., Riverdale, N. D. Bids Sept. 13, awarded Oct. 19. CD 10/3, under LB.

▲ **TEXAS**—State Hy. Dpt., Austin,

U. S. Steel Corp., 71 Broadway, New York, N. Y., and M & M Bldg., Houston, Tex., CA **$3,911,816,** Contr. III. Corpus Christi Ship Channel Bridge, Fed. Proj. U-204 (8), Nueces Co. Bids Oct. 17. CD 10/22, under LB.

▲ **TEXAS**—State Hy. Dpt., Austin,

Tex.—**A. & A. Contrs.,** P. O. Box 455, Olney, Tex., LB **$153,667,** grading, structures, base, surf. Hy. No. FM 2279 and 1835. Proj. R 2146-2-1, R 1747-1-2, Haskell and Stonewall Counties;

Tex.—**Austin Asphalt Co.,** P. O. Box 1490, Dallas 1, Tex. LB **$496,398,** flexible base, b. conc. 9.186 mi. Hy. US 287. Proj. F 385 (21), Ellis Co.;

Tex.—**Brown & Root, Inc.,** P. O. Box 3, Houston, Tex., LB **$259,671,** grading, structures, base, surf. 5.623 mi. Hy. FM 102, 442, 1096. Proj. C 709-2-8, C 838-1-7, Wharton Co.;

Tex.—**John F. Buckner & Sons,** P. O. Box 76, Cleburne, Tex. and **Uvalde Constr. Co.,** P. O. Box 10286, Dallas 7, Tex. LB **$398,671,** foundation course, flexible base, b. conc. 6.689 mi. Hy. SH 78. Proj. S 1530 (3), S 126 (4), Dallas and Collin Counties;

Tex.—**R. C. Buckner,** P. O. Box 609, Jacksonville, Tex. LB **$365,309,** grading, structures, base, surf. 7.557 mi. Hy. FM 92. Proj. C 703-2-7, Hardin Co.;

Tex.—**Cage Bros.,** 6959 San Pedro St., San Antonio, Tex. LB **$174,920,** grading, structures, base, surf. 4.874 mi. Hy. FM 2214, Proj. R 1697-2-2, Eastland Co.; LB **$1,664,218,** grading, drainage structures, grade separation structures 7.379 mi. Hy. US 77. Proj. I 230 (4), Denton Co.;

Tex.—**J. M. Dellinger, Inc.,** P. O. Box 4227, Corpus Christi, Tex., LB **$633,391,** flexible base, b. conc. 12.491 mi. Hy. US 77. Proj. F 373 (6), Lavaca Co.; LB **$312,737,** flexible base shoulders and b. conc. 15.441 mi. Hy. US 281. Proj. F 244 (3), Comal Co.;

Tex.—**F & C Engineering Co.,** P. O. Box 2426, Houston, Tex., LB **$566,064,** flexible base, c. conc. 2.267 mi. Hy. US 90. Proj. I 149 (13), Orange Co.;

Tex.—**Ned B. Hoffman,** 617 Fort Worth Club Bldg., Fort Worth, Tex. LB **$179,279,** grading, structures, base, surf. 15.277 mi. Hy. FM 1636 and 1597. Proj. R 2187-1-1 and R 2188-2-1, Jones Co.;

Tex.—**O. W. Howard, Madisonville, Tex. and J. C. McLaughlin,** P. O. Box 1149, Bryan, Tex., LB **$472,599,** grading, structures 10.459 mi. Hy. FM 158. Proj. S 555 (3), Brazos and Grimes Counties;

Tex.—**T. F. Jones Constr. Inc.,** P. O. Box 5126, Lubbock, Tex., LB **$319,855,** flexible base, one course surf. tr. 7.659 mi. Hy. US 84. Proj. F 366 (3), Hockley Co.;

Tex.—**Allen Keller Co.,** P. O. Box 393, Fredericksburg, Tex., LB **$193,718,** grading, structures, base, surf. 18.768 mi. Hy. FM 140. Proj. S 833 (2), Uvalde and Zavala Counties;

Tex.—**Lange & Lowman Constr. Co.,** P. O. Box 506, Brenham, Tex., LB **$141,617,** base and b. conc. 1.372 mi. Hy. US 183 and 77. Proj. C 155-5-6 and C 371-3-23, Refugio Co.;

Tex.—**Luce Constr. Co.,** P. O. Box 1799, Vernon, Tex., LB **$74,227,** grading, structures, base, surf. 3.594 mi. Hy. FM 1065, Proj. R 740-3-4, Briscoe Co.

Tex.—**Marco Constr. Co.,** 6714 Long Dr., Houston, Tex. LB **$267,000,** c. conc. and asph. 1.968 mi. Hy. US 59. Proj. U. 514 (20), Harris Co.;

Tex.—**Hugh McMillan,** P. O. Box 1227, El Paso, Tex. and **Lbe Moor Constr. Co.,** 205 Bassett Tower, El Paso, Tex. LB **$1,025,579,** flexible base, hot mix b. conc. 26.882 mi. Hy. US 62 and 180. Proj S 149 (9), Hudspeth Co.;

Tex.—**Lee Moor Contg. Co.,** 205 Bassett Tower, El Paso, Tex., LB **$200,894,** flexible base, b. conc. 8.39 mi. Hy. US 67. Proj. F 1105 (5), Crockett, Crane and Upton Counties;

Tex.—**Holland Page,** P. O. Box 1181, Austin 66, Tex., LB **$531,431,** flexible, b. conc. pavement, shell conc., pavement widening and TCT Ry. overpass Hy. State 146, Proj. F 1081 (5) Galveston Co.;

Tex.—**M. E. Ruby,** P. O. Box 96, San Marcos, Tex. and **H & H Constr. Co.,** 801 Brown Bldg., Austin, Tex. LB **$104,938,** grading, structures, base, and surf. 8.035 mi. Hy. FM 573. Proj. R 1029-2-4, Comanche and Mills Counties; LB **$125,083,** foundation, course and two course surf. tr. 7.503 mi. Hy. SH 304, Proj. S 1508 (6), Bastrop Co.

Tex.—**Schwope Eng. Constr. Co.,** P. O. Box 15066, Houston, Tex., LB **$1,619,169,** grading, structures, base and surf. 13.045 mi. Hy. FM 2279 and 1835. Proj. R 2146-2-1 and R 1747-1-2, Haskell and Stonewall Counties;

Tex.—**Texas Bitulithic Co.,** P. O. Box 10365, Dallas, Tex. LB **$344,692.** flexible base, c. conc. 0.517 mi. Hy. US 80. Proj. F 496 (7), Tarrant Co. Bids Oct. 18. CD 10/8, 10/1, 9/26.

▲ **Peter Kiewit Sons' Co.,** Box 531, Vancouver, Wash. CA **$2,780,000.** grading, dredging work in connection with constr. of railroad bridge at Noxon Rapids Dam, several miles downstream from damsite, Sanders Co., MONTANA. Washington Water Power Co., W825 Trent St., Spokane, Wash.

BUILDINGS—LB & CA

▲ **Weitz Co., Inc.,** 406 Fleming Bldg., Des Moines, Iowa. CA **$2,397,000.** general contract converting building into TECHNICAL SCHOOL, DES MOINES, IOWA. Bd. Educ., 629 3 St., Des Moines, Iowa. Bids Sept. 11. CD 9/25, under LB.

▲† **Martin K. Eby Constr. Co., Inc.,** 610 N. Main St., Wichita, Kan., LB **$4,795,979,** ACADEMIC BLDG., Inv. 23-028-57-16, FORT LEAVENWORTH, KAN. U. S. Eng., Federal Office Bldg., Kansas City, Mo. Bids Oct. 5. CD 9/6.

▲ **W. H. Bennett Constr. Co.,** 1310 State St., Kansas City, Kan. CA **$2,198,079.** general constr. HIGH SCHOOL on 40 acre tract at 75 and Mission Rd., MERRIAM, KAN. Shawnee-Mission Dist. High School, Merriam, Kan. CD 10/23, under LB;

W. T. Conroy Plumbing Co., 1525 Locust St., Kansas City, Mo. CA **$599,626.** plumbing work (Merriam, Kan.).

▲ **Louis Cowan,** 110 E. 42 St., New York 17, N. Y. CA Est. **$3,750,000.** 16 story APARTMENT, 1400 Hermann Dr., HOUSTON, TEX. 1400 Hermann Drive Corp., 1331 D'Amico St., Houston, Tex. Kelly & Gruzen, 80 Fifth Ave., New York 3, N. Y., archts.

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAYS LETTINGS
STREETS AND ROADS
November 21, 23, 29 California

BUILDINGS—SLC

▲ **Calif., San Jose**—PLANT EXPANSION—International Business Machines Corp., 25 Battery St., San Francisco, soon lets contract plant expansion incl. two 200,000 sq. ft. mfg. buildings and two 40,000 sq. ft. engineering laboratories, $8,750,000. John S. Belles, 215 Leidesdorff St., San Francisco, archt. CD 1/13.

HEAVY CONSTRUCTION—LB & CA

▲ **WASHINGTON**—State Hy. Comn., Olympia,

Woodworth & Co., Inc., 1200 E. "D" St., Tacoma, Wash., CA **$1,639,758** (4 bidders) surf., cement treated base with paving with b. conc. relocating government installations, installing 2 illumination sys., 3 rein.-conc. rigid frame slab bridges and steel plate girder railway bridge on 3.523 mi. Primary State Hy. No. 1, FAP IN-I-ING 001-3 (14) Unit 2, Pierce Co. Bids Oct. 16, awarded Oct. 17. CD 10/18, under LB.

▲† **Morrison-Knudsen Co., Inc.,** 319 Broadway, Boise, Idaho, LB **$2,395,180.** runway reconstr., Geiger Air Force Base, Inv. 57-34, SPOKANE, WASH. U. S. Eng., 5735 E. Marginal Way, Seattle 4, Wash. Bids Oct. 23.

▲ **CALIFORNIA**—State Div. Hys., 1120 N St., Sacramento,

Piombo Constr. Co., M & K Corp., and Connolly-Pacific, (joint venture) P. O. Box 395, San Carlos, Calif., LB **$5,103,614,** est. $5,800,000. (3 bidders) grading, paving 3.8 mi. Bayshore Freeway, 7 bridges, in Redwood City, San Mateo Co. Bids Oct. 24. CD 9/21.

▲† **Pacific Bridge Co.,** 256 Montgomery St., San Francisco, Calif., LB **$1,383,500** (8 bidders) reconstr. Wharf No. 4, Naval Constr. Battalion Center, Spec. 4185/56, PORT HUENEME, CALIF. Eleventh Naval Dist., 1220 Pacific Hy., San Diego, Calif. Bids Oct. 18. CD 10/8.

BUILDINGS—LB & CA

▲ **Johnson, Drake & Piper, Inc.,** 9009 San Leandro St., Oakland, Calif., CA, **$3,743,700,** general contract four 3 story CELL BLOCK UNITS at California State Prison, SOLEDAD, CALIF. State Div. Architecture, 1120 N St., Sacramento, Calif. Bids Oct. 9, awarded Oct. 19. Grand total $5,496,528. CD 10/12, under LB;

Collins Electrical Co., Inc., 611 W. Fremont St., Stockton, Calif., CA, **$528,528,** electrical work (Soledad, Calif.);

S. Glen Hickman Co. & Hickman Bros., Inc., 3170 E. 11 St., Los Angeles, Calif., CA, **$1,224,300** mechanical work (Soledad, Calif.).

CANADA

HEAVY CONSTRUCTION—BA

STATE HIGHWAYS LETTINGS
STREETS AND ROADS
November 7 Ontario

BUILDINGS—LB & CA

▲ **Coke Oven Co. of Canada,** c/o Wilput Coke Oven Div. Allied Chemical Corp., 40 Rector St., New York, N. Y., U. A. S. CA, Est. **$6,000,000.** 57-battery COKE OVEN for plant expansion, SAULT STE. MARIE, ONT. Algoma Steel Corp. Ltd., 503 Queen St. E., Sault Ste. Marie, Ont. Awarded Oct. 11. CD 11/29.

▲ **Swindell-Dressler Co.,** Laprairie, Que., CA Est. **$1,500,000.** tunnel kiln, dryers, etc. BRICK PLANT, LA-PRAIRIE, QUE. Laprairie Brick & Tile Inc., 660 St. Catherine St. W., Montreal, Que. Dominion Tar & Chemical Co. Ltd., Sun Life Bldg., Montreal, Que., engrs. Awarded Oct. 15.

ALASKA

HEAVY CONSTRUCTION—LB & CA

▲† **Alaska**—AMMUNITION STORAGE FACILITIES—BA 11/29—U. S. Eng., 4735 E. Marginal Way, Seattle, ammunition storage facilities, incl. security-control bldg., assembly and check-out building, storage magazine, steam and electrical distr., water sys. and sanitary sewer, roads and grading, Ladd Air Force Base, Inv. 57-37. $2,000,000. CD 8/22/55.

▲† **Alaska**—AMMUNITION STORAGE FACILITIES—BA 11/29—U. S. Eng., 4735 E. Marginal Way, Seattle, ammunition storage facilities, incl., security control bldg., assembly and check-out building, storage magazine, steam and electrical distr., water sys. and sanitary sewer, roads and grading at Elmendorf Air Force Base, Inv. 57-36. $2,000,000. CD 8/22/55.

(Proposal Advertisement see pp. 118 to 121)

GULF PRODUCTS and FINE SERVICE

keep equipment rolling on Arkansas Flood Control Project

Atlas Construction Company, Vidalia, Louisiana, has the contract for a 70-mile irrigation ditch for an important flood control project in Arkansas. Gulf lubricants and fuels help keep every unit of equipment running smoothly on a tough operating schedule of 24 hours a day, 7 days a week.

With higher-than-ever operating costs threatening your profits, it will pay you to take stock of the advantages Gulf offers as a supplier of petroleum products.

Advantages like these: Quality lubricants that provide an extra margin of protection against mechanical delays; fuels that insure top engine performance; prompt delivery service from close-at-hand distribution points; and helpful petroleum engineering counsel.

You will find, as have so many leading contractors—ask Atlas Construction Company, for example—that these advantages add up to smoother operation and lower maintenance costs.

Send the coupon for a copy of Gulf's new brochure, "Gulf and Your Business."

Gulf Oil Corporation · Gulf Refining Company
1822 Gulf Building, Pittsburgh 30, Pa. ENR

Gentlemen:

Please send me a copy of your new brochure, "Gulf and Your Business."

Name.....

Company.....

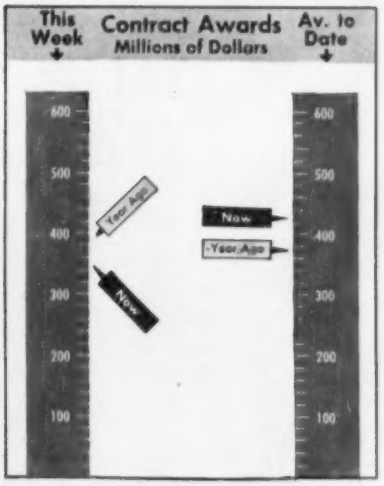
Title.....

Address.....

GULF

Construction Scoreboard

Activity this Week



AMOUNT OF CONTRACTS LET

By Ownership	This Week	Cum. 44 wks 1956	Chge %
	millions		
Federal	$18.2	$1,468.3	+21
State and Municipal	166.0	5,626.2	+24
Total Public	184.2	7,094.5	+18
Total Private	165.9	11,641.6	+16
U. S. Total	$350.1	$18,736.1	+17
By Type of Work			
Waterworks	$3.8	$307.7	+31
Sewerage	6.7	512.9	+51
Bridges	26.0	538.5	+30
Highways	83.0	2,137.1	+15
Earthwork, Waterways	6.1	646.4	+39
Buildings:			
Public, Excl. Housg.	49.0	1,770.1	+19
Public Housing	1.2	287.1	+22
Private Housing	81.2	4,780.0	−12
Commercial	32.5	1,636.3	+12
Industrial	45.7	4,570.9	+88
Unclassified	14.9	1,549.1	−9
U. S. Total	$350.1	$18,736.1	+17

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

NEW CAPITAL FOR CONSTRUCTION

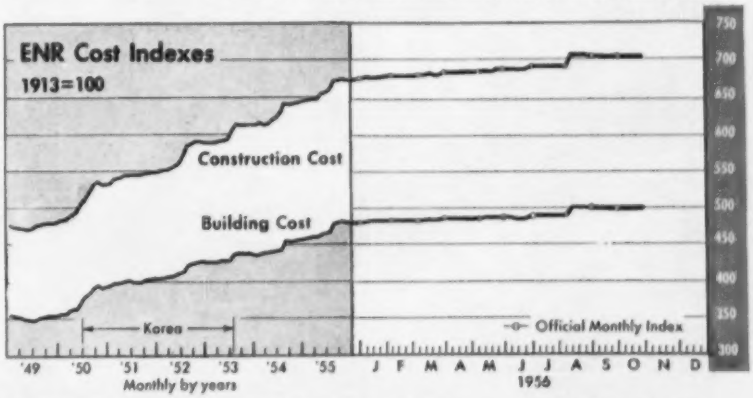
	Week Oct. 25	Cum. 43 wks 1956	'55-'56 Chge
	of millions		%
Corporate Securities	$79.3	$4,080.3	+40
State and Municipal:			
All Except Housing	154.9	3,840.6	+9
Housing	...	42.3	−47
Federal Loans	*	134.0	+17
Federal Aid	...	1,070.0	+25
Total Nonfederal	$234.3	$9,167.3	+23
Federal Appropriations:			
In U. S.	$...	$3,460.3	+2
Outside U. S.	...	15.9	−81
Total New Capital	$234.3	$2,643.5	+16

* $40,000 this week

Cost Indexes as of Now

ENR INDEXES (1913 = 100), 20-cities' average	Week of Oct. 25 1956	% Change from Sept. 27 1956	Oct. 27 1955
Construction Cost	704.13	+0.04	+4.6
Building Cost	499.93	+0.08	+4.3

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850.
1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518.



BUILDING COSTS AND PRICE INDEXES

	July (Jl) Aug. (A) Sept. (S) Oct. (O)	% Change from June (J) July (Jl) Aug. (A) Sept. (S) Oct. (O)	Year ago
Weighted Cost Indexes (1949 = 100)			
ENR Construction Cost†	148 (O)	−0.1 (S)	+4.5
ENR Building Cost†	142 (O)	−0.1 (S)	+4.1
Associated General Contractors	137 (S)	+0.6 (A)	+6.6
American Appraisal Co.*	131 (S)	+0.2 (A)	+4.6
Marshall & Stevens, Inc	139 (S)	+1.8 (J)	+5.2

†Official monthly indexes for October. *Adjusted for estimated productivity.

Weighted Price Indexes (1949 = 100)**			
E. H. Boeckh & Associates, Inc			
Commercial & Factory	134 (S)	+0.2 (A)	+5.0
Smith, Hinchman & Grylls, Inc	140 (S)	+0.3 (A)	+3.5

**Includes overhead, profit; adjusted for estimated productivity.

Contractor Price Indexes (1949 = 100)			
Aberthaw	141 (S)	+4.9 (J)	+10.5
Austin	245 (S)	+2.8 (J)	+10.6
Fruin-Colnon	132 (O)	0 (S)	+3.3
Fuller	481 (Jl)	+0.4 (Ap)	+3.9
Turner	133 (O)	+1 (Jl)	+9.0

HIGHWAY BID PRICE INDEXES

	Third 1956 Quarter	Percent Change from Previous Quarter	Year ago
Quarterly, 1949 = 100			
California Division of Highways	130.6	−2.7	+19.4
Colorado Department of Highways	101.9	+1.5	+10.4
Idaho State Highway Department	113.0*	+8.2	−5.8
South Dakota State Highway Department	97.7	−3.6	+11.9
Texas Highway Department	119.6	+4.7	+10.2
Washington State Highway Commission	104.3	+1.0	+19.6

*Index shown is based on 1950 = 100

CONSTRUCTION MACHINERY PRICE INDEXES

BLS Indexes of Manufacturer Prices, (1947–49 = 100)	Sept. 1956	Percent Change from Last Month	Year ago
All Types	151.3	+1.3	+7.7
Power Cranes and Shovels	150.6	+1.1	+5.6
Tractors	164.9	+1.3	+10.8
Scrapers and Graders	147.6	+2.8	+6.9
Mixers and Pavers	134.5	0	+4.2
Machinery, Tractor Mounted	149.3	+1.8	+7.3
Specialized Construction Machinery	137.9	+1.5	+6.4
Portable Air Compressors	133.2	0	−0.3
Air Tools, Hand Held	150.0	0	+13.6

IT'S HERE!

THE BIG ADVANCE IN 2-WAY RADIO

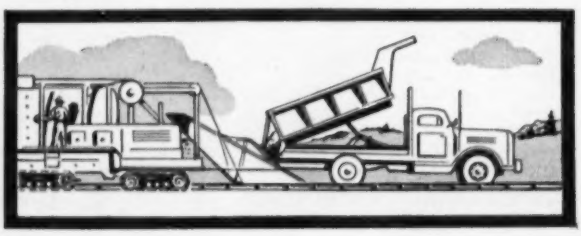
Bendix DYNA-COM

. . . and here are 10 ways it helps CONTRACTORS and BUILDERS save money

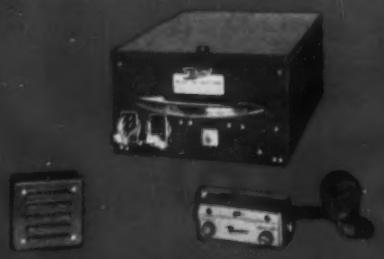
Coordinates men and equipment ★ Speeds repairs Expedites orders faster ★ Cuts no-load miles ★ Improves operator's morale ★ Controls field operations Cuts down-time ★ Enables equipment to be shifted quickly from one site to another ★ Helps meet emergencies in minimum time ★ Eliminates vehicle messenger miles

Good communication is vital in keeping projects running smoothly and in meeting construction deadlines. And that's just what Bendix*Dyna-Com Radio gives you. Good, clear, dependable communications. Radio contact frees superintendents and field foremen from extra miles of driving making routine checks. It allows them to spend more time at critical points where they are needed most. Bendix Dyna-Com Radio provides the instant voice contact between all key personnel that results in smoother, on-schedule operation. It prevents duplication of work effort, eliminates lost time for both men and equipment.

FROM SUPPLY BASE TO CONSTRUCTION SITE Bendix 2-Way Radio performs many time-saving functions from supply base to construction site. In addition to solving traffic control problems, it enables you to put equipment where it is needed most in minimum time. Loading tie-ups are avoided, material flow speeded. Complete coordination of men, supplies and equipment through use of Bendix 2-Way Radio boosts over-all efficiency.



NEW!



Dyna-Com Mobiles Cover all frequency ranges: 25-54 mc; 144-174 mc; 450-470 mc. Available in power outputs from 15 to 60 watts. Interchangeable between 6 and 12 volt vehicles without modification.

NEW!

Dyna-Com Portables Greater versatility and flexibility than any other portable equipment. Compact, lightweight, full 1-watt output. Extra-long battery life. Complete line of accessories including a transistorized, plug-in loud-speaker.

NEW!

Dyna-Com Consoles and Base Stations For 25-54 mc; 144-174 mc; 450-470 mc; delivering from 20 to 60 watts output. Operate from 117 volt AC power lines. Quality engineered for performance and appearance.

NEW!

Bendix Bantam For low-power, limited range application as a mobile unit or base station. Provides more than 1-watt power output. Operates from 6, 12, 24, 32 volts DC or 117 volts AC without modification or costly converters. Adds flexibility to any communications system.

COMPLETE NEW LINE OF PRECISION-BUILT FM MOBILE UNITS AND BASE STATIONS FOR ALL FREQUENCIES!

The result of over 5 years laboratory research and development, Bendix Dyna-Com is the first big advance in 2-way radio in over a decade. All new from chassis to cabinet, each model incorporates all the latest improvements which have made Bendix the foremost leader in railroad and aviation communications; in airborne navigation; in radar and in military electronics.

For example, Dyna-Com's unitized design sets a new standard for performance and dependability. It features plug-in, interchangeable chassis construction which speeds service and saves maintenance costs. Any chassis in the Dyna-Com line can be transferred, without adjustment or modification, between mobile units and base stations.

Bendix Radio

DIVISION OF BENDIX AVIATION CORPORATION BALTIMORE 4, MD.

Find out how Bendix Dyna-Com can boost the efficiency of your organization. Let a Bendix Communications Engineer survey your communication needs without obligation. Call or mail the coupon today for full information on Dyna-Com—*the first big advance in 2-way radio!*

*Reg. U. S. Pat. Off

Bendix Radio
Mobile Sales, Dept. E
Baltimore 4, Md.

Gentlemen:

Please send me complete details about Bendix Dyna-Com 2-Way Radio.

☐ 25-54 mc. ☐ 450-470 mc.
☐ 144-174 mc. ☐ Bantam ☐ Portable

Name_____

Title_____

Firm_____

Street_____

City_____ State_____

THE LONGER LOOK:

Reserve Capacity Is the Key to Industrial

Industry's need for reserve capacity, to fulfill future sales goals, holds the key to the present industrial building boom.

It is a potent counter-argument to those who contend that the industrial building boom soon may be threatened by overcapacity.

Among those questioning the present rate of industrial expansion is David Rockefeller, executive vice-president of Chase Manhattan Bank.

Rockefeller recently raised the question of "whether our current rate of expansion is running the risk of leading to a crash that could be followed by a downward spiral of the business cycle."

The best available information shows a striking gap between the rise in manufacturing capacity and the actual rise in production since 1950:

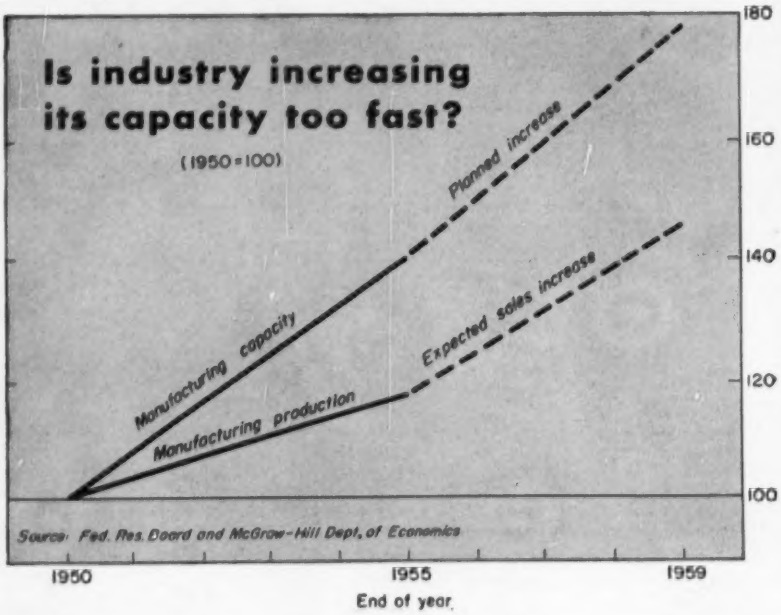
• Manufacturing industries in the U. S. will have 50% more producing capacity at the end of the year than they had in 1950. And by the end of 1959 their capacity, according to present plans, will be 78% greater than it was at the end of 1950.

Several major industries, including transportation equipment, chemicals, nonferrous metals and electrical machinery, expect to enter 1960 with more than twice as much capacity as they had in 1950.

• Meanwhile, manufacturing production has been growing less than half as fast as capacity. At the end of 1955, for example, factory production was running only 17% above the December, 1950, rate while capacity was up 40%.

These points would seem to bolster the "overcapacity" argument. But the picture is not nearly as clear as these figures suggest.

For one thing, capacity is a difficult concept to measure. In general, it can be defined as maximum output from normal use of equipment and labor. But the notion of "normal use" varies widely from one company to another. It may involve one, two or three shifts of labor. It may mean that 10% or more of the equipment regularly is taken out of production for maintenance. The result is the statistical oddity of industries such as steel and paper reporting operations at more than 100% of capacity.



The capacity figures used here are calculated by the McGraw-Hill Department of Economics on the basis of the reporting companies' own estimates. These are the only comprehensive figures on manufacturing capacity currently available, but they cannot be taken as precise.

Another statistical difficulty comes in the "weighting" process, i.e., the way steel, chemicals, machinery, cement, etc., are combined to give a comprehensive index of manufacturing capacity.

The McGraw-Hill index uses current employment to determine relative importance. But the Federal Reserve Index of Industrial Production uses "value added in manufacture" in 1947-1949. If the McGraw-Hill capacity figures are weighted this same way, the gap narrows.

Aside from the statistical problems, there are other factors that make it difficult to say industry has too much capacity.

Many companies like to have some capacity in reserve. Coming out of depression years, then war and postwar shortages, they have not had a chance so far to build up this reserve capacity.

A McGraw-Hill survey indicates that manufacturing companies, on the average, prefer to operate at 89% of capacity. But at the end of last year they actually were operating, on the average, at 92% of capacity.

Furthermore, most companies expect their sales to grow in the years ahead. And if they are to be ready to produce for growing markets, they must have the added capacity when it is needed.

While Rockefeller points out that "a number of major industries are in the middle of expansion programs that will raise their own capacity at a rate faster than their sales can be expected to grow in the near future," this does not hold true for all industry.

On the average, manufacturing companies expect their sales to increase 24% between 1955 and 1959, and this is almost exactly the same as the increase planned for capacity.

Another point in judging whether industry is overbuilding is the rapid obsolescence of equipment and products.

Old capacity is of little use if it cannot be adapted readily to produce new items currently in demand or if it is too inefficient to compete with new capacity. Much of the supposed "excess capacity" falls in this category,

Building Boom

even though it may be held in reserve for periods of peak demand.

Also important for construction is the fact that the threat of too much capacity, if it exists at all, applies only to particular industries or particular products. Even if some sectors of the chemical industry, for example, decide they have too much capacity and curtail their building programs, others still need greatly expanded facilities.

The steel industry is an outstanding example of this need for more capacity to keep in step with the sales.

The industry now is in the midst of a program to add some 15 million tons of capacity in three years. But it still will be short of capacity to meet growing needs for construction and oil drilling, among other things.

And if, as many people expect, a new process is developed to replace the blast furnace, the steel industry will have immense new needs for modernization.

In fact, the steel industry offers a good example of the economic maxim that "extra capacity" is not always "excess capacity".

Capacity Increases Anticipate Sales Rise

	% Increase in Capacity 1955 to 1959	% Increase in Sales 1955 to 1959
Iron & Steel	21	15
Nonferrous metals	37.6	26
Machinery	30.7	32
Electrical machinery	30.2	33
Autos	27	15
Transportation equipment (including aircraft)	20	34
Other metalworking	30	32
Chemicals	40	39
Paper	39	31
Rubber	27.7	21
Stone, Clay & Glass	27.4	27
Petroleum refining	13.5	17
ALL MANUFACTURING	27	24

Why Those Short of Capacity Try to Catch Up

Capacity—Rates of Operation

	Preferred	*Actual End of 1955*
Iron & Steel	87%	98%
Nonferrous metals	86	95
Machinery	88	87
Electrical machinery	88	98
Autos	81	96
Transportation equipment (including aircraft)	80	74
Other metalworking	87	94
Chemicals	92	90
Paper	97	100
Rubber	90	91
Stone, Clay & Glass	88	94
Petroleum refining	91	96
Food	89	90
Beverages	83	77
Textiles	92	93
ALL MANUFACTURING	89	92

Mortgage Troubles

Banks are more selective on business property loans; interest rates move upward

Homebuilders aren't the only ones who are having trouble in the mortgage market. Banks now are getting more selective in making mortgage loans on business properties.

Mortgage loans on business properties are "less accessible and interest rates are higher than they were six months ago," the National Association of Real Estate Boards reported last week.

A NAREB survey of 161 areas showed that money was generally tighter throughout the nation. Top credit risks are getting priority at the bankers' windows although "borrowers of all categories who had maintained close and continuous connections with local lending institutions were finding such a relationship helpful in obtaining mortgage loans."

Not even the best risks are getting all the mortgage funds they want, the NAREB study showed. The most favorable property for a business property mortgage loan is in a prime location with a national credit lease. On property of this type, two-thirds of the surveyed areas reported "ample" funds available in March. By September, only a third of the areas reported "ample" funds for even this prime category.

And, interest rates on business property mortgages have been going up even in the prime classification. In March, only 31% of the localities were paying interest rates of 5% or more on the best mortgage loans. In September, 65% were paying the higher rates.

For property in prime locations, but under local leases, NAREB's current survey indicated tight money in 45% of the areas, as against only 18% in March.

Similar patterns of money scarcity and higher interest rates developed for business property in secondary locations, the NAREB survey reported.

For secondary locations with local leases, for example, 58% of the areas said money is tight. And, for such property, mortgage loans carried an interest rate of 6% or more in 48% of the communities surveyed.

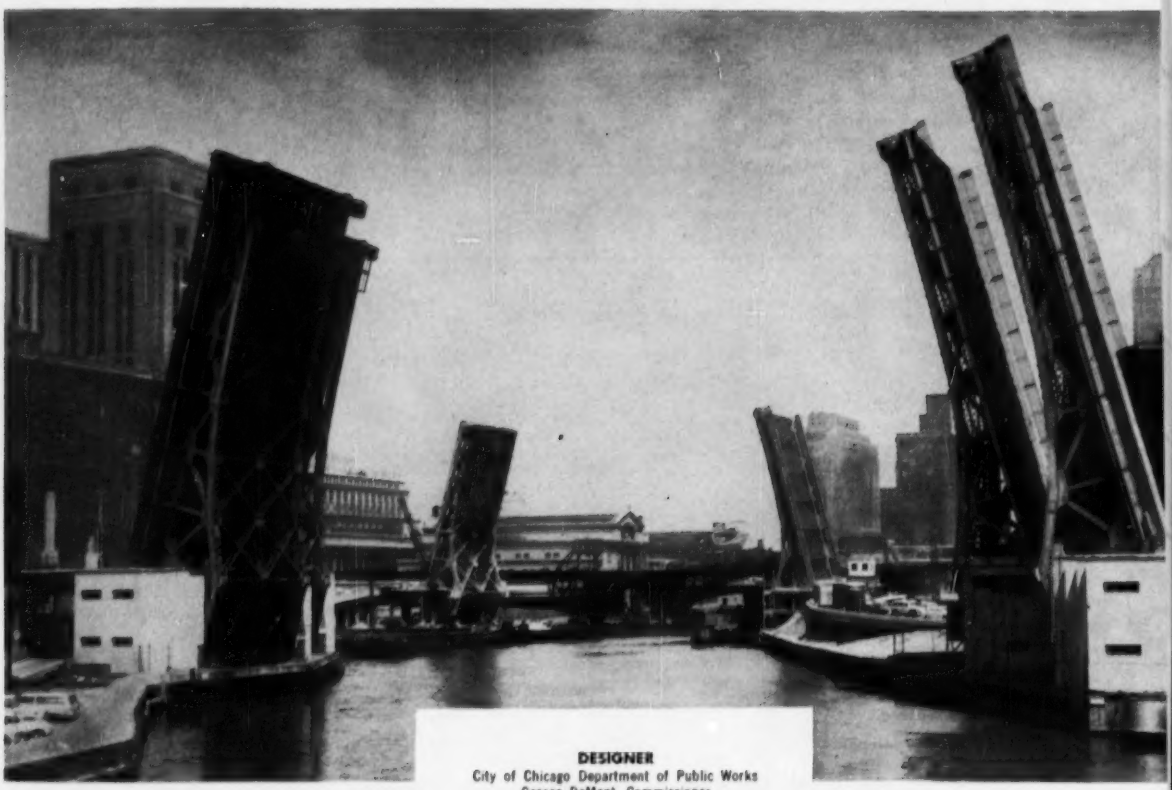
The rise in interest rates on mortgage loans for secondary locations with local leases probably will continue. Because such loans carry a greater element of risk than prime investments, they are the first to feel the effects of tighter money and higher interest rates.

(*B&F continued on page 112*)

On Two New Bascule Bridges in Chicago—

Safe All-Weather Roadways

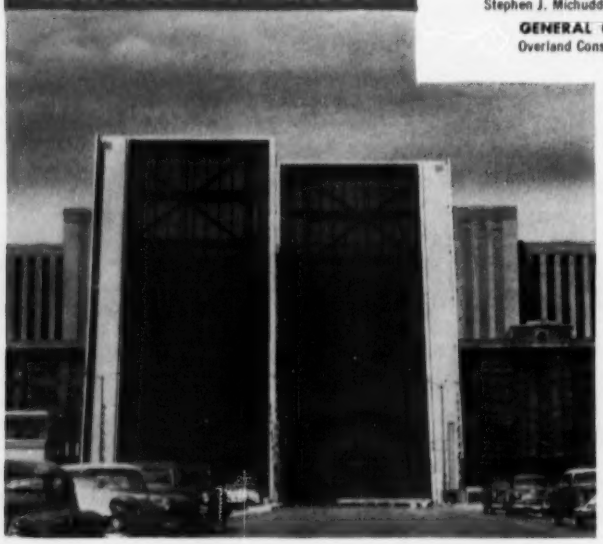
eliminate 896 tons of flooring deadweight



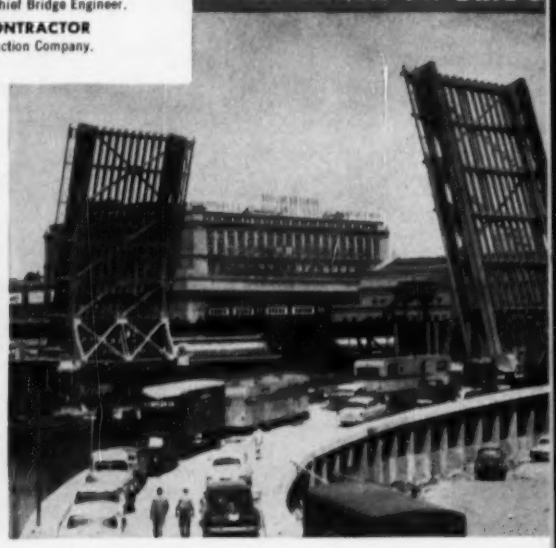
DESIGNER
City of Chicago Department of Public Works
George DeMent, Commissioner.
Bureau of Engineering, Division of Bridges and Viaducts,
Stephen J. Michudd, Chief Bridge Engineer.

GENERAL CONTRACTOR
Overland Construction Company.

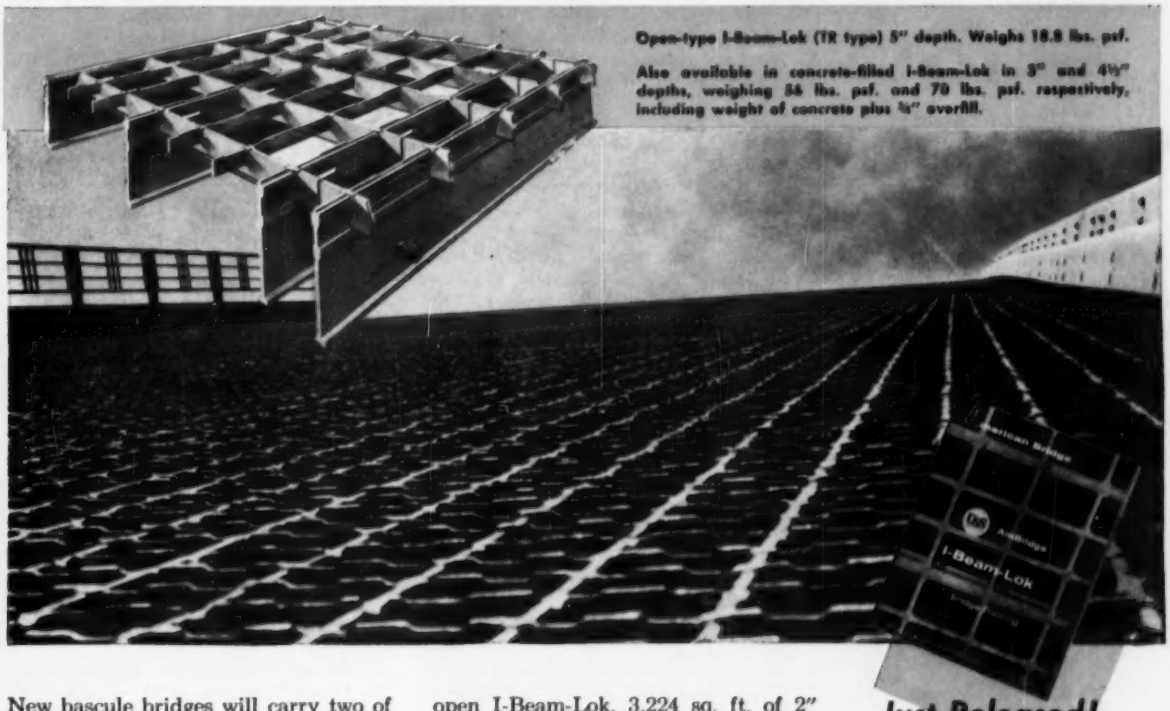
CONGRESS ST. BRIDGE



VAN BUREN ST. BRIDG



# of USS AMBRIDGE I-BEAM-LOK



Open-type I-Beam-Lok (TR type) 5" depth. Weighs 18.8 lbs. psf.

Also available in concrete-filled I-Beam-Lok in 3" and 4½" depths, weighing 56 lbs. psf. and 70 lbs. psf. respectively, including weight of concrete plus ¼" overfill.

New bascule bridges will carry two of the city's busiest thoroughfares over the Chicago River. One is the Congress Street Bridge, now open to traffic, and the other is the Van Buren Street Bridge, soon to be opened. The roadways of both crossings are of lightweight USS AmBridge Steel Flooring.

THE CONGRESS STREET BRIDGE, in the foreground of the picture on the opposite page, consists of two double-leaf, deck truss, trunnion bascule bridges. They are parallel but staggered 31'-7 5/16". Each is 244'-8⅜" long, c-c of trunnions, and has a 43' roadway and a 9'-8" sidewalk. 19,033 sq. ft. of 5" open USS AmBridge I-Beam-Lok flooring was used for the roadways, and 3,846 sq. ft. of 2" Tee-type concrete-filled sidewalk flooring for the walkways.

THE VAN BUREN STREET BRIDGE, in the background of the picture, is a double-leaf, trunnion bascule bridge, 210'-4" long, c-c of trunnions. It has a 44' roadway and two 8'-3" sidewalks. The roadway is floored with 8,475 sq. ft. of 5" open I-Beam-Lok. 3,224 sq. ft. of 2" Tee-type concrete-filled sidewalk flooring was used for the walkways.

If the roadways of these important, heavily traveled bridges had been floored with conventional 7" concrete slabs instead of open I-Beam-Lok, total floor weight would have been 1,155 tons, or about 3½ times heavier than the 259 tons of I-Beam-Lok involved.

USS AmBridge I-Beam-Lok open-type steel flooring is available in units up to 6'-2" in width and up to 49' in length. This lightweight, all-steel flooring with its strong, full 5" depth can be applied directly to stringers on spans up to 4' centers to permit H-20 loadings. It does not require secondary supports. It combines weight saving and reduced cost with roadway rigidity, ease of erection, and low maintenance costs. For more information about the time- and money-saving advantages of this lightweight steel flooring in bridge construction, contact the sales office nearest you.

Just Released!
New 32-Page Booklet

CONTAINS LATEST DESIGN DATA AND APPLICATION DETAILS

A valuable manual for engineers and contractors concerned with the design and erection of bridges. Describes both open and concrete-filled types of USS AmBridge I-Beam-Lok bridge flooring, as well as Tee-type concrete-filled sidewalk flooring. Covers advantages, specifications and installation.

Please address your request to Dept. EN-116, American Bridge Division, 525 William Penn Place, Pittsburgh, Pa.

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Contracting Offices in: AMBRIDGE • ATLANTA • BALTIMORE • BIRMINGHAM • BOSTON • CHICAGO • CINCINNATI • CLEVELAND • DALLAS • DENVER • DETROIT • ELMIRA • GARY HOUSTON • LOS ANGELES • MEMPHIS • MINNEAPOLIS • NEW YORK • ORANGE, TEXAS • PHILADELPHIA • PITTSBURGH • PORTLAND, ORE. • ROANOKE • ST. LOUIS • SAN FRANCISCO • TRENTON
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS AMBRIDGE I-BEAM-LOK BRIDGE FLOORING

UNITED STATES STEEL

Continuing Program

HHFA makes planning loans for sewage projects despite new grants-in-aid

The Community Facilities Administration of the Housing and Home Finance Agency is still continuing its program of lending planning money to cities for sewage works projects, despite the new Public Health Service program.

PHS has entered the picture with $50 million a year in grants for sewage works construction—including planning.

Apparently HHFA will maintain its planning loan program. The Public Health Service made an administrative decision to use all of this year's grants under the new water pollution control law for construction. None will go for planning.

PHS feels that too many projects are planned and ready for construction to warrant grants for planning at this time. However, because the new pollution control measure is for a 10-year program, planning could get the emphasis later.

With PHS now strong in the municipal sewage works finance field, and HHFA still a factor, close cooperation will be needed. In the past, all HHFA loan applications for sewage planning have had PHS study and recommendations. These applications now will be scrutinized even more closely to see how they mesh with the new program of grants-in-aid.

The Community Facilities Service of HHFA has approved loans to 52 communities for planning sewage projects in the past 18 months. Loans totaled more than $1 million, covering projects valued at more than $86.5 million.

Some of the projects that have received planning loans may be eligible also for a construction grant.

In addition, CFA now has pending 36 applications for nearly $1.2 million in loans for sewage plant planning.

Ohio, and New York Tollroads Report Increase in Revenues

Ohio's Turnpike No. 1 and the New York State Thruway have been attracting paying customers at a good rate.

After one complete year of operation, the Ohio Turnpike has netted $11.1 million after debt service and expenses.

Tolls accounted for nearly $12.1 million during the fiscal year ended Sept. 30. Restaurant and service station commissions and miscelleanous receipts brought total revenue to more than $14.6 million. Next year, the Turnpike Commission expects total revenues to reach $20 million because of greater use of the tollroads by truckers.

Meanwhile, New York State's Thruway is continuing to show substantial gains in revenue receipts.

During the first nine months of 1956 total receipts on the Thruway added up to $17 million, up 69% over the comparable year-ago period. More than $1.2 million has been realized this year through sale of the Authority's $20 annual permits that give purchasers unlimited use of the Thruway.

Highway Bid Prices Dip in Two States

Contrary to expectations, highway bid prices in California and South Dakota declined in the third quarter.

The contractors' bid prices rose only moderately in Colorado and Washington, but reached new peaks in both states.

Idaho's bid price index rebounded 8.2% from the low second quarter, but failed to reach the near record high posted in the first quarter of this year. Moreover, it fell nearly 6% short of the year-ago level.

On a year to year basis, five out of six western states reported sharp boosts in bid prices in the third quarter. These ranged from 10% for Texas and Colorado to more than 19% for California and Washington.

Despite the sharp rise over the third quarter of 1955, California's highway price index showed a surprising dip between the second and third quarters of this year.

The California Division of Highways, which reported a rise of 16.6% in its index during the second quarter, had forecast a continued rise in the third quarter. Instead, the index dipped 2.7%. The third quarter reading was 249.1 based on 1940=100.

The index dropped because of favorable steel prices obtained on six freeway jobs and because contractors were less wary in their bidding once the steel strike had ended.

However, California feels the third-quarter dip in contractors' bid prices is only temporary. It expects the index to start upward again in this quarter.

Contractors on Colorado highway jobs upped their bid prices 1.5% during the third quarter. But this marked a substantial tapering-off from the rate of climb in the second quarter.

Colorado's 1.5% rise came on top of a 24.7% jump in the second quarter. The latest increase pushed the Colorado Department of Highways index to a new high of 101.9 based on 1949=100.

The State of Washington reported a moderate 1% rise in contractors' bid prices during the third quarter.

The Texas highway price index moved up 4.7% in the third quarter to a new value of 119.6, based on 1949=100.

South Dakota showed a drop of 3.6% in the third quarter. The new value for this index is 97.7, also based on 1949=100.

The wide range of bid price patterns in the third quarter contrasts with the ENGINEERING NEWS-RECORD Construction Cost Index rise of 1.6% during the third quarter.

New Crossing of Hood Canal Termed Financially Feasible

Having received a report from consulting engineers that construction of a $16.9-million bridge over Hood Canal is financially feasible, the Washington State Toll Bridge Authority has ordered the State Highway Director to ask for a construction permit from the Corps of Engineers.

The report was made by the New York consulting firm of W. C. Gilman & Co. The same firm earlier this year reported that construction of a more expensive high level bridge across the canal at another location was not financially feasible. Since that time, the original plans for a fixed span with floating structures have been changed to provide for a low-level floating bridge with a floating draw span. The new design is expected to save an estimated $3 million in construction costs.

The new route is about two miles northeast of the present South Point-Lofall ferry route, originally proposed as the bridge site. The long and narrow Hood Canal—a natural waterway—blocks access to the Olympic Peninsula from the Kitsap Peninsula, across Puget Sound from Seattle. The bridge would be tied in with the present ferry system across Puget Sound.

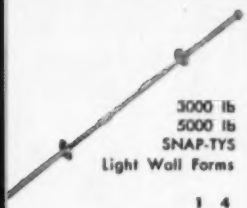
Business Briefs . . .

• **Hospital bids**—Within a month, the Alabama Health Department plans to call for bids on construction of nearly $4.1 million worth of medical facilities.

• **Lending volume down**—August mortgage loan volume for all savings and loan associations was $1,020 million, down 13% from the record high set in August of last year.

RICHMOND REFERENCE GUIDE FOR YOUR CONCRETE CONSTRUCTION NEEDS

CUT OUT AND FILE



3000 lb
5000 lb
SNAP-TYS
Light Wall Forms

1 4

½" to 1½"

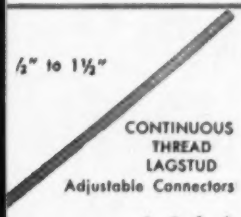
2 STRUT
TYSCRUS
Heavy Wall Forms

1 2 3 4

1" to 1½"

4 STRUT
TYSCRUS
Mass Concrete Forms

2 3



½" to 1½"

CONTINUOUS
THREAD
LAGSTUD
Adjustable Connectors

1 2 3 4

½" to 1½"

TYLOOPS
Form Anchorage

3

⅜" to 1½"

SCREW ANCHORS
AND BOLTS
Anchorage to Concrete

2 3

1¼" - 1½"

WHIRL-WIND
ANCHORS
(No Slip)
Lift Form Anchorage

3

¼" to ¾"

THREADED INSERTS
Fastening to Concrete

1 2 3 4

⅝" - ¾"

PEERLESS WEDGE INSERT
Shelf Angle Support

1

SNAP-TY
HANGER
Hanging Light Forms

1 4

½" to 1

TYHANGER
Hanging Heavy Forms

1 2 4

HANGER
FRAME SCREED
Form Hanging
and Screeding

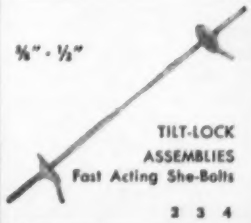
2

ADJUSTABLE
SCREED CHAIR
Screeding Slabs

1 2 4

REINFORCING
BAR SUPPORTS
Steel Support

1 2 3 4



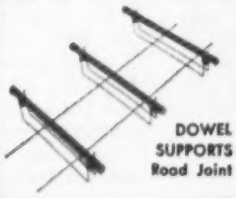
⅜" - ½"

TILT-LOCK
ASSEMBLIES
Fast Acting She-Bolts

3 3 4

TYFRAME
Stadium Forms

1



DOWEL
SUPPORTS
Road Joint

2

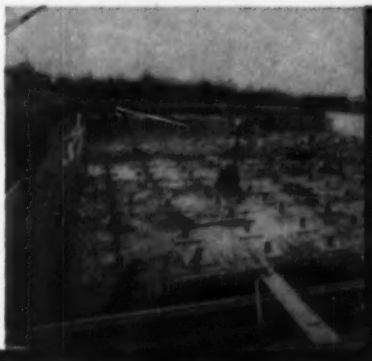
LOAD
TRANSFER
ASSEMBLIES
Airport Slabs

2

buildings ①

roads & bridges ②

tunnels & dams ③



water & sewage PLANTS ④

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RICHMOND REFERENCE GUIDE FOR YOUR CONCRETE CONSTRUCTION NEEDS

Cooperation Is Key to Safety

Education of employers and workers, not coercion, urged as answer to safety problem at National Safety Congress

Safety in the construction industry cannot be imposed from above—it must begin on the job and its promotion is the responsibility of everyone it affects.

That was the view expressed last week by Frank Bonadio, Secretary-Treasurer of the AFL-CIO Building and Construction Trades Department at the Construction Section meeting of the 44th National Safety Congress and Exposition in Chicago.

"Improving safety on construction must be a grass-roots movement," Bonadio declared, and local unions "must accept more responsibility" in carrying out safety programs. Management, labor and insurance companies working together at the local level," he said, "offer the best chances of reducing accidents."

• **No coercion**—The cooperative approach was stressed elsewhere at the Congress. A broad program of education, based on cooperation rather than coercion, for example, was recommended at the Labor Conference as the logical answer to the problem. Adm. Ben Moreell, board chairman of Jones & Laughlin Steel Corp., Pittsburgh, suggested the development "by indoctrination, education, and training of a 'safety-conscious climate' that will result in an enthusiastic acceptance of and an eager willingness to cooperate voluntarily in a worthy cause." Unless there is such cooperation, he said, "no safety program can succeed."

William Schnitzler, Secretary-Treasurer of the AFL-CIO, attacked the problem from the same direction. He told the conference that the importance of necessary safety laws and codes should not be overlooked but said the key will be found, however, in cooperation and not in coercion. He urged, in the form of a national crusade, an education program designed to overcome the carelessness and recklessness and indifference of employers and workers alike, and asserted that the effort must be a cooperative one of labor, management, technical experts and public officials because safety is no one's exclusive prerogative.

• **An example**—Substantially the same approach has been adopted by the safety-conscious Associated General Contractors of America, which has launched a vigorous accident prevention program.

When its Accident Prevention Committee met in Milwaukee for its mid-year meeting, AGC members were urged again to participate in the association's program and were warned that the federal government may well step in and impose upon them a program of its own if they fail to demonstrate that the industry is doing better on a voluntary basis.

As to the program itself, some of the AGC committee's emphasis was on the participation of employees. Attention was given to the use of flyers, to putting safety promotion materials in pay envelopes and to recognition of individual employees as methods of creating an attitude of safety consciousness.

Such is the direction now being taken, for example, by Morrison-Knudsen at its Table Rock Dam project. By holding weekly safety meetings for workers and posting safety signs in abundance, it hopes to keep its employees keenly safety conscious.

• **Equal participation**—This prevalent feeling that the answer to the safety problem must come from within the individuals concerned in the form of a grass-roots movement led some of the members of the Chicago conference to dismiss collective bargaining as a solution. Both Moreell and Schnitzler declared that collective bargaining could afford some of the basis of cooperation but said the safety problem cannot be solved by the language of a labor contract. And both agreed that management should offer labor a greater opportunity to participate in safety efforts.

In describing safety as a "vast field for joint labor-management action," Moreell said: "Much progress has already been made and much more can be made when labor is willing to put aside the accumulated resentments which stem from past injustices, many of which are real and oppressive, and when management is willing to take labor into its confidence on many matters heretofore held to be 'top secret', but knowledge of which is essential to labor if they are to make well reasoned decisions."

"What I am proposing here," Moreell said, "is a real partnership, with each partner retaining his own area of exclusive jurisdiction and with free exchange of information."

• **Other officers elected**—Officers of the Construction Section of the National Safety Congress re-elected at the Chicago meeting were: Robert L. Jenkins, of the Corps of Engineers' Safety Division, as general chairman; William G. Hawkins, of Winston Brothers Co., Minneapolis, 1st vice president; John L. Junkert, Marsh & McLennan, Inc., Minneapolis, 2nd vice president; and Robert L. Moore, Lumbermens Mutual Casualty Co., Chicago, secretary.

Construction committee chairmen, most of whom were newly elected, are: Howard J. Schulte, engineering; D. F. Magnuson, visual aids; F. M. Boodro, service; N. G. Long, health; R. H. Hahn, membership; S. S. Elkins, newsletter; T. M. Lively, program; H. T. Perez, publicity; G. P. O'Rourke, nominating; and H. Kirk, national organizations.

Prevailing Wages

Arkansas Supreme Court declares state law invalid

The Supreme Court of Arkansas has declared the state's prevailing wage law unconstitutional.

Enacted in 1955, the law required the payment of "minimum prevailing wages" to "various classes of laborers and mechanics" employed under a contract for the construction, alteration and repair (including painting and decorating) of public buildings and public works undertaken by the state or by a county, town, city or other taxing authority. Minimum prevailing wages were defined as those "determined by the Secretary of Labor of the United States to be prevailing on similar projects in the particular area."

The court took the view that the law effectively gave the U. S. Secretary of Labor the right to determine wages for state and local public works projects and amounted to an unlawful delegation of legislative power.

In striking down the law the court reversed an earlier decision of the Pulaski County Circuit Court, which had upheld the statute.

The Supreme Court noted that the law, which failed to establish any standard or formula for wage determinations or to define the geographical limitations of a "particular area," was too vague and indefinite and essentially allowed arbitrary fixing of wage scale. Another defect was the law's failure

to provide for prevailing wages in those areas in which the Secretary of Labor has made no wage determinations. The result, the court said, was to make the law "local or special" in nature and discriminatory.

Passage of the law stemmed from a labor dispute, involving differences in wages for union and nonunion workers, during construction of the fieldhouse at the University of Arkansas. According to State Labor Commissioner C. R. Thornbrough, the law was designed to yield uniform wage scales and to eliminate the advantage of low wages in competitive bidding.

Highway, bridge and street construction were specifically eliminated from the law's application.

Court Hears Oral Arguments On Professional Bargaining

Judge B. S. Mathews of the U. S. District Court for the District of Columbia last week heard oral arguments on the first court test of the right of the NLRB to include nonprofessionals in a bargaining unit of professional engineers.

The action was brought by the Buffalo, N. Y. section of Westinghouse Engineers Association, an affiliate of Engineers and Scientists of America, to set aside an NLRB certification given to WEA-ESA after it won a representation election at the Westinghouse plant in Cheektowaga, N. Y. (ENR Oct. 11, p. 145). Basis of the action is that the board had no right, in the absence of an affirmative vote by the professionals, to include nonprofessional employees in the same unit.

Engineers Joint Council and the National Society of Professional Engineers, as well as ESA, are actively interested in the case, which may clarify the right of professional engineers to an unadulterated professional bargaining unit.

Essential issue is the right of the NLRB to dump nonprofessionals into a unit with professionals as long as the unit remains predominately professional. Those representing professional engineers have argued that such action is contrary to the express language of the Taft-Hartley Act which prohibits such action unless the professionals have voted to permit the commingling.

Whether Judge Mathews will decide the question now hangs on a jurisdictional point raised by the NLRB. It claims the District Court has no right to entertain the action and asserts that an NLRB determination of a bargaining unit can be reviewed only by a U. S. Circuit Court of Appeals in an unfair labor practice proceeding.

Industrial Construction Work

Arbitrator sees need of a flexible formula in order to decide whether plant workers have a right to perform in-plant work

An arbitrator handling a grievance that arose in Texas has ruled that an industrial concern that engaged in construction by contract did not violate its labor contract with industrial union employees who claimed the work should have been done by them.

The dispute was part and parcel of the jurisdictional problem that exists between the building trades and industrial unions. It arose at the Temco Aircraft Corp. plant in Greenville, Texas. The firm contracted out some work to Dawson Construction Co. at a time when one of Temco's employees, a carpenter assigned to maintenance work, was laid off.

Five Temco employees, represented by the United Auto Workers union, protested use of the outside contractor and claimed that the firm was required under its UAW labor contract to give available work to its own employees before going outside. The legal question was whether contracting the work to Dawson was unreasonable and violated the collective bargaining agreement with UAW.

The arbitrator, Lennart V. Larson, upheld Temco's action. Noting that the obligation imposed by a labor contract with plant employees can't be dodged by subcontracting, he reasoned that there are instantances in which the practice is justified even though it involves work covered by a collective bargaining contract. Here, UAW had conceded Temco's right to contract out new construction but contended that maintenance, repair and alteration work were within the province of the members of the collective bargaining unit.

Larson took the position that such disputes cannot be governed by ironclad rules and said the following criteria should control the settlement of each dispute:

- Number of employees available to perform the work contracted out.
- Whether new or expensive tools and equipment would have to be acquired to enable plant employees to do the work.
- Necessity of training men and supervisors to perform the work.
- Whether the duration of the work contracted out is limited and whether, if not contracted out, additional employees would have to be hired temporarily.
- How often the firm puts work out under contract. If the company didn't contract out, would there be additional permanent jobs for members of the bargaining unit?
- How similar is work done by the outside contractor to work regularly done by members of the bargaining unit?
- What has been the past practice of the firm?

"The recognition provisions of a collective bargaining contract," Larson said, "meant that if work is performed on the premises which falls within the bargaining unit, then the contract operates. The obligation under the contract cannot be avoided by the easy device of a subcontract." But in a case such as this, he concluded, where the work was of short duration, where only one employee was available to do it and where the firm's action conformed with past practices, contracting work out is reasonable, "even though the subcontractor has employees who perform the same job duties as do men in the collective bargaining unit."

Court Upholds Picketing To Gain Union Standards

Union picketing aimed at inducing a nonunion contractor to meet union wages and working conditions has been upheld by a court in Minnesota.

The picketing, conducted by Local 1464 of the carpenters union, was directed against Langness Construction Co. of Mankato, Minn. The union does not represent the company's employees and has not asked for a union contract. Picketing signs stated that the company does not pay union wage scales nor adhere to union standards.

Langness had obtained a temporary restraining order against the local. It claimed the object of the picketing was to force it to sign a union contract and to make its employees union members against their will. This was denied by the union, and the court concurred.

The Sixth District Court of Minnesota concluded that the purpose of the picketing was to bring wages and working conditions on the Langness project up to the prevailing standards established by carpenter labor contracts in the area. According to Judge Milton Mason, this in itself constituted a legitimate labor dispute and justified

the picketing. Mason found no evidence to support the contractor's claim that the carpenters' picketing, which had been going on for nearly three months, was intended to compel Langness to force its employees to join a union. The injunction was therefore dissolved.

Make-Work Practice

Homebuilders go to court in dispute on stucco work

Homebuilders in the San Francisco East Bay area have charged local plastering contractors and union plasterers with a conspiracy to force builders to use three coats of stucco on the exterior of new stucco homes. Builders have been using two coats plus a brushed-on coat of paint or sealer that is claimed to be more effective, to give a wider range of color selection and to be cheaper.

Charges of "make work" practices, enforced by work stoppages and other harassing tactics, were contained in a petition for an injunction filed by 12 members of the Associated Home Builders of Greater East Bay against the Plastering Contractors Association and Local 112 of the plasterers union. A restraining order, affecting work performed in Alameda and Contra Costa Counties, has been entered against both groups.

The builders complained that plasterers in several instances have been taken off jobs when the contract doesn't call for three plaster coats. The two-coat method, according to the builders' association, saves the home buyer money and complies with the Uniform Building Code of the Pacific Coast Building Officials Conference and with FHA, VA and virtually all city and county code requirements.

Tied into the "make work" charges is a union jurisdictional problem of plasterers and painters. Behind the present practice of using a coat of paint brushed on by painters—who would be eliminated by the three-coat stucco method—is an agreement of several years' standing between the two international unions assigning the brush-on work to painters.

Industrial Union Conflict Is Still a Knotty Problem

No satisfactory solution to the jurisdictional conflict between the building trades and industrial unions is yet in sight, it was reported last week.

The report came from Frank Bonadio, Secretary-Treasurer of the AFL-CIO Building Trades Department, during the closing sessions of the laborers' thirteenth convention in Chicago.

Despite a series of official efforts to find a workable solution, Bonadio said, "we have gotten absolutely no place."

The problem has been brewing ever since the AFL-CIO merger last December. Core of the problem, which affects contractors as well as construction workers, is the extent to which industrial concerns should use their own employees for various forms of construction work claimed to be within the province of the building trades. An interdepartmental committee, representing both the building trades and industrial unions, was appointed to seek a solution. Following a series of inconclusive meetings, the building trades, fearful of further encroachments on their domain, called a slow-down of union mergers on the state level. This soon was called off and a special AFL-CIO committee was appointed to attempt a solution.

"We do not believe," Bonadio told the laborers, "that this thing should be stalled. We will not stand for too much stalling. We think that if both sides are rational and if they will recognize it, we and only we in the building trades have been given the jurisdictional rights over all building trades regardless of where they might be employed. Then and only then can we reach an agreement."

Court Uses Intent as Test In Secondary Boycott Case

In deciding whether union picketing constitutes an unlawful secondary boycott, significant factors, according to the Supreme Court of Texas, are the actual intent of the picketing union members and how the relative interests of those affected balance out.

The case before the court stemmed from teamster picketing of a concrete mixing and hauling firm. Part of the lower court's injunction restraining the picketing was set aside by the upper court.

Discussing the secondary effect of the picketing on neutral employers, the court said these two factors should be considered in determining whether the picketing was lawful:

- "The good faith intent of the union or striking employees in picketing a secondary situs to exert pressure only on the primary employer, to which effort the effect on neutral employers is purely incidental.
- "The balancing of relative rights of all affected parties against the harm which would result to the other parties and to the public from permitting or restraining the picketing."

The majority opinion of the Supreme Court, which split seven to two, was written by Associate Justice Calvert.

Labor Briefs . . .

- **Industrial construction**—United Auto Workers in the union's national Chrysler Department have reaffirmed their claim to industrial construction work by demanding that provisions of their contract be followed and that the company use Chrysler workers instead of outside contractors to the fullest extent.

- **Union mergers**—Nebraska became the 16th state to complete its AFL-CIO merger on the state level, when the Nebraska State AFL-CIO was formed with Gordon C. Preble as president. But in Delaware a proposed merger agreement, already approved by the CIO, hasn't won AFL support because of building trades' opposition.

- **Union organization**—Organized labor won assurance last week that the Administration is against forcible prevention of union efforts to organize. Labor Secretary Mitchell and NLRB Counsel Kammholz agreed to expedite investigation of interference with unionization of southern textile workers, one of the initial targets of the current AFL-CIO drive in the South.

- **Atomic fears**—Members of the auto workers, electrical workers (IUE) and paperworkers unions have joined in an effort to block construction of the fast breeder nuclear reactor by the Power Reactor Development Co. in Monroe County, Mich. They're asking revocation of AEC's initial construction permit on the grounds that construction and operation of the facility would endanger public health and safety.

- **Even Stephen**—A Detroit contracting firm, Darin & Armstrong, Inc., has established a pension plan for salaried employees to give nonunion workers the same old-age security breaks won by its union workers. The company contribution—10 cents an hour—equals the amount it contributes to union funds.

- **Picketing ban?**—The New York State Chamber of Commerce has asked members of the state legislature to ban use of pickets in union membership drives. It said organizational picketing denies employees their legal right to choose their bargaining representative and inflicts "irreparable damage" on innocent employers.

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NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, Public Buildings Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time, on the 15th day of November 1956, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1; G. L. Nickerson, District Engineer, 353 Broadway, Albany 1; N. Y.						
Rensselaer (Routes 9 & 20)	FARC 56-100	Boston-Albany, S.H. 202 Schodack Center-Nassau, S.H. 536 Schodack Center-Valatie, Pt. 2, S.H. 5020 Project U-F-368(9)	4.08	Asp. Conc. Opt.=3.60 Mi.; 9" Cem. Conc. Pavt. 40'-54'; Var. Wide=0.36 Mi.; Misc. Work=0.07 Mi.; Widen 2 existing bridges	$75,000 Plans $25	$1,351,000
Schenectady	M-56-8	Movable Dam No. 4, Lock 8E, Erie Canal near Scotia	....	Painting Superstructure & Repairing Sill	$4,500 Plans $10	73,500
DISTRICT No. 4; B. F Perry, District Engineer, Barge Canal Terminal, Rochester 1; N. Y.						
Monroe	FISH 56-9	Interstate Route Connection No. 7 (Rochester-Bushnell Basin Pt. 3) Project I-1107(3)	2.30 (3.57 Acc.)	9" Cem. Conc. Pavt. 2@25' Var. Wide=4.99 Mi.; Asp. Conc. Ty. 2A=0.58 Mi.; Misc. Work=0.30 Mi.; 3 Hy. Sups. Comp. I-Beams 181.7', 163' & 164'; 2 Ped. Overpasses I-Beams 148' and 145.5'; 2 Brs. R.C. Arch 28' & 33.8'	$147,000 Plans $50	2,674,000
DISTRICT No. 5; E. G. H. Youngmann, District Engineer, State Office Bldg., 65 Court St., Buffalo 2, N. Y.						
Chautauqua	FASS 56-11	Frewsburg-Kennedy Road C.R. 7, 36 and part of 60 Project S-469(1)	2.46	Asp. Conc. Opt.=2.42 Mi. Misc. Work=0.04 Mi.	$17,000 Plans $15	315,000
Erie	NT 56-7 NTC 56-8 STC 56-10	New York State Thruway—Niagara Sect.—Sub. N1 & N2 (Rossler-Clinton Sts.)	1.41 (2.27 Acc.)	9" Cem. Conc. Pavt. 2@37' Var. Wide=2.02 Mi.; Asp. Conc. Ty. 2B=1.26 Mi.; Misc. Work=0.40 Mi.; 3 Hy. Sups. Comp. I-Beams 216.3', 191.8' & 217.8'	$210,000 Plans $50	3,742,000
Erie	FINTC 56-4 FINT 56-5 NT 56-6 FIRC 56-92	New York State Thruway—Niagara Sect.—Sub. N-7 (Ontario St.—So. Grand Island Bridge); River Road, S.H. 23; Sheridan Drive, S.H. 9216 & Sheridan Drive ext., S.H. 9333 Project I-865(10)	4.57 (5.53 Acc.)	9"—2 Course Cem. Conc. Pavt. 2@25' Wide=7.29 Mi.; 9" Cem. Conc. Pavt. Var. Wide=0.24 Mi.; Asp. Conc. Opt.=1.13 Mi.; Asp. Conc. Ty. 2B=0.14 Mi.; Bit. Mac. Ty. 1=0.90 Mi.; Misc. Work=0.40 Mi.; 6 Hy. Sups. Comp. I-Beams 57', 301.3', 173.9', 314.8'; 169.8' and 180.1'; 1 RR Sup. Comp. I-Beam 261.9'; 1 RR Sup. I-Beam 195'	$440,000 Plans $100	8,090,000
DISTRICT No. 6, J. H. Thomas, District Engineer, State Office Bldg.; 30 W. Main St.; Hornell, N. Y.						
Chemung	FARCC 56-101	Elmira City: East Church St.; F.A.C. 54-11 Project U-221(9)	0.04	Installation of Sewer & Misc. Work	$3,500 Plans $10	64,000
DISTRICT No. 8, K. G. Rauen, Acting District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.						
Columbia	FERC 56-95	Copake Iron Works—Bashbish Falls, S.H. 1790 Project ER-24(1)	0.40	Stream Channel Relocation & Slope Protection	$3,500 Plans $10	64,000
Westchester, N. Y. & Fairfield, Conn.	FINET 56-7	New York State Thruway—New England Section—Sub. NE-5 (Byram River Bridge & Approaches); 2 Cross Roads Project I-1068(14)	0.30 (0.09 Acc.)	9" Cem. Conc. Pavt. 74'-82' Var. Wide=0.30 Mi.; Asp. Conc. Opt.=0.09 Mi.; 16 Sp. Bridge Plate Girder & Comp. I-Beam 1262.8' Long	$200,000 Plans $50	3,602,000
DISTRICT No. 10, M. E. Goul, District Engineer, 325 W. Main St., Babylon, Long Island, N. Y.						
Bronx	FICBE 56-3	Cross Bronx Expressway Cont. 1D (Plimpton-Anthony Aves.) Project I-1084(24)	0.94	Demolition	$2,200 Plans $10	40,000
Queens (Rte. 25D)	FAHHE 56-2	Horace Harding Expressway Sect. 1 (Cont. 3) Project I-862(9)	0.86 (3.08 Acc.)	9" Cem. Conc. Pavt. with Carb. Black 2@36' Var. Wide=0.77 Mi.; 9" Cem. Conc. Pavt. Var. Wide=0.42 Mi.; Asp. Conc. Opt.=2.70 Mi.; 3 Brs. Comp. I-Beams 439.9', 382', and 335.1'; 1 Ped. Overpass Steel Girder 131.5'	$400,000 Plans $100	6,981,000

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage) Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds.

Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders".

The right is reserved to reject any or all bids.

JOHN W. JOHNSON
SUPT. OF PUBLIC WORKS

Bids: November 15, 1956

New York State Road Work

NOTICE TO CONTRACTORS

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Public Building Law and Highway Law, sealed proposals will be received, until 10:30 A.M., on November 15, 1956 by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, the Governor Alfred E. Smith State Office Building, Albany, N. Y. for:

Contract B.P. 56-51, Pt. IV for Beach Protection (Three Stone Groins) at Atlantic Beach, Town of Hempstead, Nassau County, New York

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts and Accounts, 14th Floor, The Gov. Alfred E. Smith State Office Bldg., Albany, New York.
(b) Department of Public Works, 270 Broadway, New York City, N. Y.
(c) In addition to the above mentioned offices, plans, maps and specifications for Contract B.P. 56-51, Pt. IV may be examined and obtained at the office of Mr. Milton E. Goul, District Engineer, 325 West Main St., Babylon, L. I., New York.

The deposit for Plans and Proposal Forms for Contract B.P. 56-51, Pt. IV is $10.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's Estimate of Cost for Contract B.P. 56-51, Pt. IV is $775,000.00

Proposals for B.P. 56-51, Pt. IV must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of five percentum, (5%) of the amount of the bid. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Public Building Law and to the Highway Law as set forth in "Instructions to Bidders" in the contract specifications. The right is reserved to reject any or all bids.

JOHN W. JOHNSON
SUPT. OF PUBLIC WORKS

Bids: December 17, 1956

Construction of Municipal Building

OFFICIAL NOTICE NO. 227
NOTICE TO CONTRACTORS

Separate sealed proposals will be received at this office until Monday, December 17, 1956, at 10:30 A.M., at which time bids will be publicly opened and read for furnishing all material and doing all the work necessary and required for the CONSTRUCTION of the MUNICIPAL BUILDING and GARAGE to be located at the corner of MARKET STREET, EAST KILBOURN AVENUE and BROADWAY, MILWAUKEE, WISCONSIN, on proposal forms furnished by and in accordance with plans, specifications, and proposed form of contract on file in the office of the Department of Public Works. Total estimated cost over $6½ million, broken down into 18 branches. Complete information in plans and specs., which will be furnished upon receipt of deposit of $150.00. Overall time limit approximately 540 days.

Signed: LLOYD D. KNAPP
Commissioner of Public Works
Room 301, City Hall

OFFICIAL PROPOSALS

Bids: November 20, 1956

West Side Sanitary District
Onondaga County, New York

ADVERTISEMENT
NOTICE TO CONTRACTORS
CONSTRUCTION OF THE
MAIN PUMPING STATION

Separate sealed bids for the construction of the Main Pumping Station, West Side Sanitary District, will be received for the Onondaga Public Works Commission by the County Purchasing Agent, Room 107, County Court House, Syracuse 2, New York until 2:00 P.M., Eastern Standard Time, November 20, 1956 and there at said office publicly opened and read aloud. Bids will be received for:

Contract No. 2—General Construction
Contract No. 3—Electrical Work
Contract No. 4—Mechanical Equipment & Piping

These Contracts provide for the construction of the Main Pumping Station, West Side Sanitary District, including a forty-two inch emergency relief sewer, a forty-two inch connection to the West Side Trunk Sewer, and a connection to a 24-inch force main.

Information for Bidders and all Contract Documents may be examined at said office and copies of the same there obtained upon payment of Ten Dollars ($10.00) for each set. Any bidder submitting a sealed bid to the Purchasing Agent, Onondaga County, upon returning such set in good condition within thirty (30) days of the date of receiving bids, will be refunded the full amount of his deposit. One-half of the deposit will be refunded to all non-bidders upon return of the sets of plans and contract documents in good condition within thirty (30) days of the date of receiving bids.

Copies of the above described Contract Documents may be examined at no expense at the above office of the Purchasing Agent, at the office of the Onondaga Public Works Commission, 418 South State Street, Syracuse, New York, or at the office of O'Brien & Gere, Consulting Engineers, 400 East Genesee Street, Syracuse 2, New York.

The right is reserved to waive any informalities in the bids and to reject any or all bids.

ONONDAGA COUNTY, NEW YORK
By: Robert W. Sollinger,
County Purchasing Agent

Dated: October 25, 1956

Bids: November 20, 1956

West Side Sanitary District
Onondaga County, New York

ADVERTISEMENT
NOTICE TO CONTRACTORS
CONSTRUCTION OF THE
WEST SIDE FORCE MAIN
CONTRACT NO. 5

Separate sealed bids for the construction of the West Side Force Main, West Side Sanitary District Contract No. 5, will be received for the Onondaga Public Works Commission by the County Purchasing Agent, Room 107 County Court House, Syracuse 2, New York until 2:00 P.M. (Eastern Standard Time), November 20, 1956 and there at said office publicly opened and read aloud.

The West Side Force Main includes the construction of approximately 9,550 lineal feet of 24-inch reinforced concrete pressure pipe sewage force main, including two railroad crossings, a brook crossing, and rip-rap protected embankment, together with various appurtenances.

Information for Bidders and all Contract Documents may be examined at the said office and copies of the same obtained upon payment of Ten Dollars ($10.00) for each set. Any bidder who has submitted a bona-fide proposal, upon returning such set in good condition within thirty (30) days of the date of receiving bids, will be refunded the full amount of his deposit. One-half of the deposit will be refunded to all non-bidders upon return of such set within thirty (30) days of the date of receiving bids.

Copies of the Contract Documents may be examined at no expense at the above office, at the office of the Onondaga Public Works Commission, 418 South State Street, Syracuse 2, New York, and at the office of O'Brien & Gere, Consulting Engineers, 400 East Genesee Street, Syracuse 2, New York.

The right is reserved to waive any informalities in the bids and to reject any or all bids.

ONONDAGA COUNTY, NEW YORK
By: Robert W. Sollinger,
County Purchasing Agent

Dated: October 25, 1956

Bids: November 15, 1956

New York State Road Work

NOTICE TO CONTRACTORS

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 A.M., Eastern Standard Time, on November 15, 1956, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y. for:

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON INTERSTATE ROUTE 505, SECTIONS A, B AND C, FROM OSWEGO COUNTY LINE TO PHILOMEL CREEK, TOWNSHIPS OF ELLISBURG, ADAMS, WATERTOWN, HOUNSFIELD AND PAMELIA, JEFFERSON COUNTY, WHICH CONSTITUTES CONTRACT NO. SPEC. SM-96.

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts and Accounts, 14th Floor The Governor Alfred E. Smith State Office Building, Albany 1, New York.

(b) Mr. Robert W. Sweet, District Engineer, 444 VanDuzee Street, Watertown, New York.

(c) Mr. William M. Trainer, Associate Contract Engineer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50 percent of deposit.

The Engineer's estimate of cost for this work is $32,925.00.

Proposal for this contract must be submitted in separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $1,650.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders."

The right is reserved to reject any or all bids.

J. W. JOHNSON
SUPERINTENDENT OF
PUBLIC WORKS

Bids: November 27, 1956

Contract 439

MARGARETVILLE-ARKVILLE SEWERS

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M. Eastern Standard Time on Tuesday, November 27, 1956 for Contract 439, for the construction of about six miles of sewers, including a railroad crossing, four stream crossings, manholes and other appurtenances, and a total of about six miles of house connections. The sewers will be from six to 15 inches in diameter and the house connections six inches in diameter. The location of the proposed work is in the Village of Margaretville and in the hamlet of Arkville, in the Town of Middletown, Delaware county, New York.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained in Room 1312 (Acting Secretary's Office), at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same; the cost thereof to be paid by them. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, EDWARD C. MAGUIRE, HERBERT M. ROSENBERG, Commissioners, Board of Water Supply; BETTY COHEN, Acting Secretary.

Bids: November 15, 1956

Delaware River Port Authority
of the
Commonwealth of Pennsylvania
and the
State of New Jersey

Administration Building
Camden, New Jersey

WALT WHITMAN BRIDGE CONTRACT NO. P-14

Sealed bids will be received for "Cinder Bin Facilities" under the Philadelphia and Gloucester Approaches of the Walt Whitman Bridge, known as Contract No. P-14, at the office of the Executive Director of the Delaware River Port Authority, Administration Building, Bridge Plaza, Camden, New Jersey, until 2:30 P. M., Eastern Standard Time, Thursday, November 15, 1956, at which place and time they will be publicly opened and read by the Authority.

A more complete description of the work and full information for bidders are given in the Contract Documents and Specifications for this Contract, which may be obtained upon the deposit of $10.00 check, which will be remitted upon receipt of bid or the return in good condition of the copies so taken within thirty days after the opening of bids.

Each proposal must be accompanied by a certified check in the sum of $10,000 payable to the Delaware River Port Authority and drawn upon a National or State Bank or Trust Company having an office or place of business either in Philadelphia, Pennsylvania or Camden, New Jersey, and must not be enclosed with the sealed bid. The surety's consent must be shown. The bidder to whom the contract is awarded will be required to furnish a Performance and Labor and Materialman's Bond in the sum of 100 percent.

The Authority will afford prospective bidders an opportunity to inspect the site of the work.

The Authority reserves the right to waive any informalities in the bids received; to reject any or all bids, and to award the contract only to those experienced in this class of work and to the bidder whose proposal is deemed by the Authority to be most advantageous to the public interest.

DELAWARE RIVER PORT AUTHORITY
JOSEPH K. COSTELLO,
EXECUTIVE DIRECTOR

10/17/56
McS

Bids: November 27, 1956

Contract PN-380.002

ADVERTISEMENT
THE PORT OF NEW YORK AUTHORITY
PORT NEWARK
BUILDING NO. 173
BUILDING, PAVING AND UTILITIES

Sealed proposals for the construction of Building No. 173 (bottling plant) at west side of Export Street, Port Newark, together with paving and utilities therefor, will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1109, 111 Eighth Avenue, New York 11, N. Y. until 2:30 P.M. on Tuesday, November 27, 1956, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Design of the Authority, Room 1115. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman

New York, November 1, 1956

OFFICIAL PROPOSALS

Bids: November 15, 1956

The Illinois State Toll Highway Commission

NORTHERN ILLINOIS TOLL HIGHWAY
NORTH ILLINOIS ROUTE
CONTRACT N-3C
ADVERTISEMENT FOR BIDS

Sealed Proposals will be received by The Illinois State Toll Highway Commission at the office of the Commission, 20 North Wacker Drive, Chicago 6, Illinois, until 11:00 o'clock A.M., Central Standard Time, on Thursday, November 15, 1956, and immediately thereafter will be taken to the Exhibit Hall of the Sherman Hotel, Randolph and Clark Streets, Chicago, Illinois, and publicly opened and read aloud.

Prospective bidders are hereby informed that the first sentence of Section 314a 38 of Chapter 121 of the Illinois Revised Statutes provides that—

"All contracts let for the construction of any work authorized to be done under the provisions of this Act where the amount thereof is in excess of the sum of $1,000, shall be let to the lowest responsible bidder or bidders on open, competitive bidding after public advertisement made at least fifteen days prior to the opening of bids, in a newspaper of general circulation published in each of the seven largest cities of the State, as determined by the last preceding Federal census in such manner and at such intervals as may be prescribed by the Commission."

The work to be done under this Contract shall be completed in three hundred seventy (370) calendar days after the date specified in the Notice to Proceed, and consists of:

The grading, drainage, paving, the construction of appurtenances, and the erection of precast concrete bridges for approximately 6.18 miles of the Northern Illinois Toll Highway in Construction Section N-3C thereof, beginning at a point approximately 100 feet east of Markley Road, at Northern Illinois Toll Highway Centerline Station 931 + 75 in Spring Township, Boone County, and extending easterly to a point approximately 4742 feet east of Riley Road (TR 239) at Northern Illinois Toll Highway Centerline Station 1258 + 41.87, in Riley Township, McHenry County, Illinois.

The approximate quantities of the principal items of work are as follows:

Item	Approximate Quantity
Borrow	710,000 Cu. Yds.
Roadway Excavation, Unclassified	285,000 Cu. Yds.
Selected [illegible]	120,500 Cu. Yds.
Granular [illegible]	64,000 Cu. Yds.
10" Rein[illegible]C Pavement	180,500 Sq. Yds.
Bituminous Shoulders	115,500 Sq. Yds.
Right-of-Way Fence	66,000 L. Ft.

Copies of the Plans, Specifications, Proposal Forms and other Contract Documents for said Contract are available for public inspection or purchase at the office of the Chief Engineer, The Illinois State Toll Highway Commission, Room 1654, 20 North Wacker Drive, Chicago 6, Illinois. These documents may be purchased from said Chief Engineer for the following sums, per set, which sums are non-returnable:

Standard Specification for Northern Illinois Toll Highway	$5.00
Proposal Form, Special Provisions and other Contract Documents, per copy	$5.00
Plans, per set	$25.00

A Bidders' Conference will be held in the Assembly Room, Suite 631, 20 North Wacker Drive, Chicago, Illinois, at 10:00 o'clock A.M., Central Standard Time, on Friday, November 9, 1956.

All Proposals must be on the forms prescribed by the Commission, and must comply with the terms and conditions set forth in the Contract Documents.

A Contractor's Financial Statement and Experience Questionnaire, a Plan and Equipment Questionnaire, and a Statement of Current Contractual Obligations on forms supplied by the Commission will be required from all bidders.

Each Proposal must be accompanied by a Proposal Guaranty in the amount of five (5) per cent of the total amount shown in the Proposal for the Contract, provided that the Proposal Guaranty will not be required in an amount exceeding $250,000 for any one contract. The Proposal Guaranty shall be in the form of an acceptable bid bond or a bank draft, certified check or cashier's check drawn on a solvent bank made payable to The Illinois State Toll Highway Commission.

In accordance with the provisions of an Act of the General Assembly of the State of Illinois entitled "An Act regulating wages of laborers, mechanics and other workmen employed under contracts for public works," approved June 26, 1941, as amended, the Commission has made an investigation and finds that the general prevailing wage rates in the locality in which the Work covered by this Contract is to be performed are as follows:

CLASSIFICATION	County Boone *Hourly wage (1)	(2)	County McHenry *Hourly wage (1)	(2)
Bricklayers	$3.50	a	$3.60	a
Carpenters	3.00	a	3.35	a
Cement Masons				
Curb, gutter and roadmen	3.00	e	3.45	e
Engineers on Paving and Road Work				
Power shovels	2.95	b	3.30	b
Koehring, grader, digger and crane excavators	2.95	e	3.20	e
Hass or Barber Green diggers	2.95	e	3.20	e
Pavers or double drum mixers over 27E	2.95	e	3.15	e
Pumpcretes			3.00	e
Pavers or mixers 27E or under	2.75	e	3.05	e
Rollers, except grade rollers			2.75	e
Asphalt spreaders	2.75	e	2.75	e
Clam shells			3.00	e
Surfacing machines			3.00	e
Retreading machines			3.00	e
Concrete spreaders			2.75	e
Side broom tractors	2.95	e	2.75	e
Mobile cranes	2.95	e		
Truck winches with "A" frames	2.75	e	2.75	e
Asphalt plant—cranes	2.95	e	3.10	e
Power blades, motor patrols	2.75	e	3.00	e
Tournapuls	2.75	e	3.00	e
Front end loaders, highlift shovel	2.75	e	3.00	e
Elevating graders			2.65	e
Sub graders	2.75	e	2.75	e
All boilers	2.30	e	2.50	e
Curb, sidewalk and culvert mixers	2.30	e	2.55	e
Dinky locomotives	2.30	e	2.55	e
Small rubber tread end loaders			2.85	e
Power saw on pavement			2.35	e
Truck crane driver			2.35	e
Power earth drills or power augers			3.00	e
Stone crushers	2.30	e	2.55	e
Tamping machines	2.30	e	2.65	e
Finishing machines	2.75	e	2.75	e
Form graders	2.30	e	2.55	e
Material handling devices	2.75	e	2.65	e
Bull floats	2.75	e	2.75	e
Le Tourneau, Continental and Austin diggers, scoops, etc.	2.75	e	3.00	e
Grade rollers	2.30 to 2.75	e	2.55	e
Air compressors	2.30	e	2.50	e
Welding machines	2.30	e	2.50	e
Tractors	2.75	e	2.60	e
Bulldozers	2.75	e	2.90	e
Pumps	2.30	e	2.35	e
Blade graders (manually operated)	2.30	e	2.45	e
Mechanical heaters			2.35	e
Firemen	2.30	e	2.35	e
Oilers	2.30	e	2.35	e
Master mechanics	3.20	e	3.20	e
Mechanic	2.95	e	2.95	e
Maintenance work—winter—December to April	2.40	e	2.40	e
Maintenance work helpers	2.10	e	2.10	e
Iron Workers				
Structural	3.25	a	3.25	a
Laborers				
Jackhammer men, drill men, concrete breakers, air spades	2.65	f	2.65	f
Form setters	2.55	f	2.55	f
Sheeters and cribbers	2.35	f	2.55	f
Pipe layers and bottom men	2.55	f	2.55	f
Black top rakers	2.55	f	2.55	f
Asphalt tampers and smoothers	2.45	f	2.45	f
Puddlers, air tampers, vibrators	2.45	f	2.45	f
Cement handlers	2.45	f	2.45	f
Running mixers and hoists	2.45	f	2.45	f
Others	2.40	f	2.40	f
Painters			3.00	d
Pipe Fitters	3.40	h	3.50	a
Plumbers	3.40	h	3.50	a
Soil Boring				
Driller and operator	2.47½		2.72½	
Tooldressers or assistant operator	2.17½		2.42½	
Chauffeurs on:				
Four-wheel trucks—				
5 cu. yds. and under	2.35	e		
6 cu. yds and under			2.35	e
Over 5 cu. yds	2.50	e		
Over 6 cu. yds			2.55	e
Six-wheel trucks—				
8 cu. yds. and under	2.55	e		
10 cu. yds. and under			2.55	e
Over 8 cu. yds	2.75	e		
Over 10 cu. yds			2.70	e
Dumpsters, track trucks, Euclids, hug bottom tournatrailers or tourna-puls when pulling other than self-loading equipment:				
8 cu. yds. and under			$2.55	e
10 cu. yds. and under	$2.55	e		
Over 8 cu. yds up to and including 16 cu. yds			2.70	e
Over 10 cu. yds up to and including 16 cu. yds	2.75	e		
Over 16 cu. yds	2.95	e	2.90	e
Oil distributors				
1 man operated	2.95	e	2.90	e
2 man operated	2.60	e	2.55	e
Service trucks—				
Other than heavy duty	2.35	e	2.35	e
Heavy duty			2.55	e
Tandem and semi-trailer	2.55	e	2.55	e
Batch trucks—				
2—34 E batches or less	2.35	e	2.35	e
3—34E batches			2.55	e
Over 3—34E batches	2.55	e	2.70	e
Carry-alls			2.55	e
Winch trucks	2.55	e	2.55	e
Mixer trucks—				
3 cu. yds. and under	2.40	e	2.65	e
Over 3 cu. yds	2.50	e	2.65	e
Explosive and/or Fission Material trucks			2.90	e
Fork lifts and hoisters			2.55	e
Pavement breakers	2.55	e	2.55	e
Air compressors, welding machines, including those towed by cars, pickup trucks and tractors	2.35	e	2.35	e
Power mower tractors			2.55	e
"A" frame trucks used for transportation purposes	2.65	e	2.55	e
Pole trailers	2.55	e	2.55	e
Redi-Mix plant hopper operator			2.65	e
Truck dispatchers			2.65	e
Truck master mechanics			2.80	e
Truck mechanics	2.55	e	2.55	e
Truck mechanics helpers and greasers	2.35	e	2.35	e
Truck and car washers			2.20	e
Skilled dump foreman			2.55	e
Unskilled dumpman			2.35	e
Hopperman, skipman, warehouseman, dockmen	2.35	e	2.35	e
Teamsters and teamsters helpers	2.35	e	2.35	e

* HOURLY WAGE

(1) Straight time rate

(2) Overtime rate

a Double time for time worked after 4:30 P.M. Monday through Friday and for all time worked on Saturdays, Sundays and Holidays.

b Time and one-half for the ninth hour worked in any one day and for over forty hours in one week. Double time for the tenth and succeeding hours worked in any one day and for time worked on Sundays and Holidays.

c Time and one-half for the ninth and tenth hours worked in any one day. Double time for time worked thereafter in any one day and for Sundays and Holidays.

d Time and one-half for over eight hours worked in any one day Monday through Friday. Double time for time worked on Saturdays, Sundays and Holidays.

e Time and one-half after eight hours of work in any one day and after forty hours of work in any one week. Double time for time worked on Sundays and Holidays.

f Time and one-half after eight hours worked in any one day or after 4:30 P.M. Monday through Friday and for all time worked on Saturday. Double time for time worked on Sundays and Holidays.

h Time and one-half for time worked 4:30 P.M. to 8:00 P.M. Monday through Friday and for time worked on Saturday 8:00 A.M. to 4:30 P.M. Double time for time worked after 4:30 P.M. Saturday and for time worked on Sundays and Holidays, and for time worked after 8:00 P.M. Monday through Friday.

If the bidder is an individual or partnership doing business under an assumed name, he or it shall be required to furnish prior to or at the time of submission of his first proposal, a certificate showing that such individual or partnership is registered and authorized to conduct business in Illinois under such assumed name in accordance with paragraph 4, Chapter 96 of the Illinois Revised Statutes, 1955.

If the bidder is an out-of-State corporation, it shall be required to furnish prior to or at the time of submission of its first proposal a certificate from the Secretary

(Continued on following page)

OFFICIAL PROPOSALS

of the State of Illinois as evidence that the corporation has complied with the Illinois Foreign Corporation Statutes, and that the corporation is authorized to transact business in the State of Illinois.

The award of the above Contract, if any award be made, will be to the lowest responsible bidder or bidders. The Commission reserves the right to reject any or all proposals and to waive technicalities.

THE ILLINOIS STATE TOLL HIGHWAY COMMISSION
By Austin L. Wyman, Chairman.
October 23, 1956.

Bids: November 27, 1956

Board of Education

ADVERTISEMENT

Union Free School District No. 2
Towns of Croton-on-Hudson, Cortlandt and Yorktown
County of Westchester
New York.

Separate sealed proposals for the construction and completion of the following work:

CONSTRUCTION OF ADDITION—ALTERATION TO CROTON-HARMON HIGH SCHOOL

General Construction	Contract No. 1
Plumbing	Contract No. 2
Heating & Ventilating	Contract No. 3
Electrical	Contract No. 4

In accordance with the Drawings, Specifications and other Contract Documents prepared by J. Gordon Carr and Oscar F. Wiggins, Architects, 80 West 40th Street, New York 18, New York, will be received by the Board of Education, Union Free School District No. 2, Towns of Cortlandt and Yorktown, County of Westchester, New York, at the office in the High School, Croton-on-Hudson, New York, until 8:00 P.M. Eastern Standard Time, Tuesday, November 27, 1956, at which place and time the proposals will be publicly opened and read aloud.

The Drawings, Specifications and other Contract Documents may be examined at the office of the Board of Education, High School, Croton-on-Hudson, New York, commencing October 25, 1956, and copies may be obtained by each bidder at the office of J. Gordon Carr and Oscar F. Wiggins, Architects, 11 West 42nd St., New York, New York, upon deposit of fifteen dollars ($15.00).

The deposit will be returned to the bidder upon return of the documents in good condition within thirty days after the opening of bids, provided a formal proposal has been submitted by the bidder. Additional sets may be obtained on payment of actual cost of preparing same.

The Board of Education reserves the right to reject any or all bids, or to accept any bid which in the opinion of the Board will be to the best interest of the School District.

No bidder may withdraw a bid within 45 days after the actual date of the opening thereof.

Board of Education
Union Free School District
Towns of Cortlandt and Yorktown
County of Westchester,
New York
By Bernard A. Kennedy, Clerk
October 25, 1956.

U. S. Government

Government of Iraq, Ministry of Economics, Grain Board. Construction of Steel Grain Silos and Appurtenant Structures at Baghdad and Mosul Concrete Silo Sites. The Iraqi Grain Board invites separate or combined tenders for the construction of steel grain silos at each of the above sites all in accordance with specifications schedules, drawings and addenda covering the work. A unit price type of contract covering all the required work at each of the two sites or a combination of the two contracts will be awarded to the successful tenderer. The work to be performed includes but is not limited to the following:—1. Constructing foundations. 2. Erecting 3 steel bins and appurtenances at each site using material to be furnished by the Grain Board. 3. Modifying and installing silo equipment to be furnished by the Grain Board. 4. Furnishing and installing additional silo equipment. Copies of the documents for tender may be inspected at the following addresses on or after 1st November 1956. a) The office of the President of the Grain Board at South Gate, Marjan Building, Baghdad, Iraq. b) Iraqi Embassies in Washington, London and Paris, and Legations in Bonn, Brussels and Rome, and obtained on payment of ID. 35/— or the equivalent thereof, at the following addresses: (a) The Office of the President of the Grain Board at South Gate, Marjan Building, Baghdad, Iraq. (b) The Offices of the Consulting Engineers Tippetts-Abbett-McCarthy-Stratton at 5 Merlin Street P.O. Box 42 Athens, Greece and 62 West 47th Street, New York 36, N. Y., U. S. A. The tenders shall be in English and must be accompanied by a preliminary deposit as provided for in the Contract Documents. Tenders shall be enclosed in a sealed package endorsed clearly on the outside "Tender for the Construction of Steel Grain Silos and Appurtenant Works at Baghdad and Mosul Concrete Silo Sites". In case a combined tender is submitted both documents and bonds must be enclosed in one sealed package. Tenders shall be addressed to the President of the Grain Board, South Gate, Marjan Building, Baghdad, Iraq, and shall be delivered to the offices of the President of the Grain Board in Baghdad on or before 12 o'clock noon local time 31st January 1957. If sent by post, tenders shall be registered but the tenderers must assure themselves of delivery to the Grain Board on time. Tenders not submitted within the time specified or not accompanied by a receipt of deposit as required by the contract documents will not be considered. During the time allowed for tender, the Grain Board reserves the right to amend the documents for the purpose of clarification or modifications in design, or in contract conditions. Any such amendments will be in the form of addenda distributed to prospective tenderers. President of the Grain Board N. A. Umari.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4792) will be received at Stockton, Kansas, until December 11, 1956, for furnishing labor and materials for Earthwork and Structures for Kirwin South Canal, Station 0+52 to Station 860+50, Laterals, and Drains, Missouri River Basin Project, Kansas. Location near Gaylord, Kansas. Principal items are 1,175,000 cu. yds. excavation; 1,680 cu. yds. concrete; 17,300 lin. ft. corrugated-metal and concrete pipe; 100 metal slide gates; 43,500 pounds steel piling and metalwork; and other work. Completion time 530 days. For particulars, address Bureau of Reclamation, P. O. Box 841, Stockton, Kansas; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

SEARCHLIGHT SECTION

This index is published as a service to the reader. Every care is taken to make it accurate, but SEARCHLIGHT SECTION assumes no responsibility for errors or omissions.

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EMPLOYMENT OPPORTUNITIES

REPLIES (Box No.): Address to office nearest you c/o This publication Classified Adv. Div.
NEW YORK: P. O. Box 12 (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

General Supt. Engr. for Sewers and water lines must be well experienced in supervisory installation and estimating, coordinating inside and outside. Old established Company. Resume held in confidence. Columbia Constr. Co. Inc., 2108 Columbia Ave., Indianapolis 2, Ind., WAlnut 3-1567, Mr. Farrer.

Ditcher Sales Promotion Manager Wanted: Experienced man to head sales promotional activity of leading manufacturer of expanding ditcher line. Must have sales experience and be familiar with design and application of both wheel and boom type machines. Position involves overall sales management responsibilities with distributors and key customer contacts. Age preferably under 45. Management level compensation. Provide complete experience resume with application. Reply to: Personnel Director, Barber-Greene Company, Aurora, Illinois.

Wanted: Pile driving superintendent capable of organizing, setting up, and prosecuting large projects. Must know equipment. State qualifications in full and salary desired in first reply. P-3124, Engineering News-Record.

Designing Engineers for sewage treatment projects. State age, qualifications and salary desired. Send resume to Gardner & Sterling, Consulting Engineers, P. O. Box 74, Salisbury, Maryland.

POSITIONS VACANT

Engineers for municipal and industrial water supply, sewerage and treatment projects. Opportunities for permanent connection with long established firm of consulting engineers in mid-west. Both E.I.T.'s and engineers considered. Full information and references in first letter requested. P-3116, Engineering News-Record.

Structural Engineers and Draftsmen for permanent positions in Boston Area with old established engineering firm. P-3212, Engineering News-Record.

Wanted: For Chicago area—engineer capable of estimating and managing all types of piping projects. P-3132, Engineering News-Record.

Civil Engineers: A public utilities organization has vacancies in Water Distribution, sewer design and construction engineering-attractive benefits—work in a growing key industrial area—live in the suburbs—send resume to: Personnel Director, The Metropolitan District, 115 Broad St., Hartford, Conn.

Service Manager for fast growing equipment house Caribbean area must know Caterpillar Line also Excavating Equipment, permanent. Foreign language unnecessary. P-3216, Engineering News-Record.

Estimator for North Jersey Area—Experienced in heavy construction work, process piping, pipe lines, dams and bridges. Please submit complete resume, noting salary range and availability. P-3277, Engineering News-Record.

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EMPLOYMENT OPPORTUNITIES

DISPLAYED

The advertising rate is $28.25 per inch for all advertising appearing on other than a contract basis. Frequency rates quoted on request.

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Subject to Agency Commission.

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Send NEW ADS and Inquiries to Classified Advertising Division of ENGINEERING NEWS-RECORD
P. O. Box 12, N. Y. 36. November 15th issue closes November 2nd

TOP-FLIGHT
ENGINEERS
DESIGNERS
DRAFTSMEN

McKEE has openings for top men to fill important, permanent positions, with excellent prospects for promotion to supervisory, staff and executive posts in our expanding organization.

Our Metals, Refinery and Industrial Divisions offer you wide choice of opportunity to make fullest use of your talents in the design of refineries, blast furnaces, steel, sintering, chemical and industrial plants and their auxiliaries.

Investigate the advantages of top compensation, ideal working conditions, employment security, advancement opportunity and many generous benefits available to you at McKee.

Telephone TOwer 1-2300, Cleveland, Ohio or write to Edward A. Kolner, Arthur G. McKee & Company, 2300 Chester Ave., Cleveland 1, Ohio

Arthur G. McKee & Company
Engineering offices in
CLEVELAND, OHIO • UNION, N.J. • TORONTO, ONT.

Engineering Agency
209 S. State St., 7th Fl.
Chicago 4, Ill.

ALL POSITIONS 100% FREE

Structural Designers
$3.50-$6.50 hr.

Wide variety of projects and an opportunity to enhance your knowledge of sound engineering practices working with top men in the field.

Ask for R. A. Beal
Call—Write—Wire

STRUCTURAL & CIVIL ENGINEERS
to work in our Boston Office

METCALF & EDDY
1300 Statler Bldg., Boston

Address inquiries to Mr. Ingalls

FINANCIAL MANAGER
Large U. S. construction company seeks executive to take charge of corporate financial matters in financing of construction projects in the U. S. and abroad. Salary in the $25,000 to $30,000 range plus bonus. Please send confidential resume including present salary.

P-3294, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

ENGINEERS
Live and Work in a small progressive City near Columbus, Ohio. Positions open. Consultants office employing 40—50.

(A) Structural engineer, C.E. graduate, registered, with minimum 5 years experience designing reinforced concrete and structural steel. Supervision of structural design section.

(B) Mechanical or civil engineer with minimum 5 years experience design and/or constructing sewage and water treatment plants to check shop drawings and supervise construction work.

Salaries open; Permanent position for qualified engineers. Full information desired.

P-3305, Engineering News-Record
520 No. Michigan Ave., Chicago 11, Ill.

CIVIL ENGINEERS
Professional and Subprofessional
For Flood Control or Highway Work
Design Engineers and Draftsmen
Field Engineers and Inspectors
Chief of Party
Contract Specifications Engineer
Paid
Vacations - Sick Leave - Holidays
Part-Paid
Health Insurance - Retirement

SAN BERNARDINO COUNTY
Civil Service
236 Third Street San Bernardino, Calif.

POSITIONS VACANT
(Continued from preceding page)

Teaching appointments for September, 1957, available at university-associated College of Engineering in field of Civil Engineering. Salary and rank commensurate with experience and academic qualifications. Primary teaching field open as present faculty is flexible; preference, if any, would be in sanitary engineering and allied fields. Suburban location, Middle West, adjacent to large industrial center. P-3268, Engineering News-Record.

Position Vacant: Township Engineer. Degree in Engineering or qualified for Pa. license. Salary $6200-7200. Higher salary available depending on experience. Apply Twp. Mgr. 1390 Duncan Ave., Allison Park, Pa.

University Teaching position open in the fields of engineering drawing and descriptive geometry, Dept. of Engineering Mechanics, University of Nebraska. Engineering degree is necessary. Opportunity to do graduate work. Rank and salary based on applicant's education and experience. Write inquiries to E. J. Marmo, Professor and Chairman of Department, Lincoln 8, Nebraska.

Draftsman—Experienced structural steel detailer. Permanent position in Jersey coast resort town. Apply Park Steel & Iron Company, Evergreen & R. R. Ave., Bradley Beach, N. J.

Wanted: Civil Engineer, registered in New Jersey, at least 10 years experience in road and bridge design and construction. Must have executive ability. State qualifications in full, experience resume, references and salary requirements. Reply to P-3307, Engineering News-Record.

Teaching Personnel for the department of Mechanics, location Southwest. B.S. in engineering required, Masters Degree preferred. No teaching or industrial experience necessary. Salary range $4000 to 6500 for nine months. Rank and salary dependent upon qualifications. P-3221, Engineering News-Record.

Civil Engineers I, salary range $416-$505. Graduate or licensed engineers, field and office work. Career opportunity, with promotional opportunities, liberal retirement, vacation and sick leave policies. Apply Personnel Director, 239 South Water, City of Wichita, Wichita, Kansas.

Designers—Steel, Concrete, Electrical Piping. Air-Cond., Power Plants & Industrial Bldgs. Marbarry Corp., 120 Greenwich St., N.Y.C. Rector 2-3749.

Port Engineer—To head the engineering division of the Port of Detroit Commission. Salary $10,252. Must be registered professional engineer with considerable experience in port engineering. Write Wayne County Civil Service Commission, 628 City-County Building, Detroit 26, Michigan.

Wanted: Office Engineers and Draftsmen experience in the design of municipal paving and sewer projects. Also construction Inspectors for large sewer improvement project. Live in beautiful Ozarks, excellent school system—grade, high school and college—reasonable living costs, salary commensurate with training and experience, plus paid vacation and sick leave. P-3312, Engineering News-Record.

Wanted—Part Time reinforcing detailers to work at home. Good rates for prompt service. Our personnel know of this ad. Apply P-3333, Engineering News-Record.

Civil Engineers designers, draftsmen experience in the design of bridges, buildings, and waterfront structures. Excellent opportunity for advancement in expanding field of prestressed concrete. Write to Freyssinet Company, Inc., 57 William Street, New York City.

(Continued on page 126)

BECHTEL

AREA ENGINEERS
SENIOR ENGINEERS

Foreign Employment
Saudi Arabia

Field Engineers with refinery or related construction experience.

Office Engineers with heavy industrial construction experience on planning, estimating, costs, material takeoff, scheduling.

No Family Housing

Send resume to:
Manager of Employment & Placement
Industrial Relations Division

BECHTEL
Engineers and Builders
for Industry
220 Bush Street
San Francisco 4, California

HIGHWAY ENGINEERS
DESIGNERS
DRAFTSMEN

Drainage Engineers

FOR OFFICE WORK IN ST. LOUIS ON HIGHWAYS EXPRESSWAYS AND ASSOCIATED CIVIL WORKS

- *Permanent employment for qualified men*
- *Ample opportunity for advancement based on merit*
- *Generous transportation & moving allowances*

Plus Employee Benefit and Retirement Plan, Paid Vacations, Holidays, Sick Leave. Blue Cross available.

PLEASE WRITE FULLY TO OR INQUIRE AT

SVERDRUP & PARCEL ENGINEERING CO.

1134 LOCUST ST. ST. LOUIS 1, MO.

HEAD OF STRUCTURAL DEPARTMENT

To supervise and administer Structural Designing and Drafting Department in home office of long established Boston consulting engineering firm.

Send resume of experience, references and record of past earnings to

P-2992, Engineering News-Record
Class. Adv. Div.,
P. O. Box 12, New York 36, N. Y.

TONNAGE OXYGEN
LOW TEMPERATURE PROCESSING

The leading company in this essential and growing industry offers an exceptional opportunity for qualified persons to become a part of the permanent staff of its newly formed Engineering Construction Division.

- **Field supervision of construction.**
- **Piping design and layout.**
- **Structures, buildings, and foundation design.**
- **Electrical design for powered process machinery.**
- **Instrumentation.**

Openings for all levels of experience. Apply to B. H. VanDyke

AIR PRODUCTS, INC.

P. O. Box 538 **Allentown, Pa.**

SUPERINTENDENT

Wanted by a substantial company now producing concrete masonry building units a superintendent to take charge of designing, building and operating an additional plant in which all types of pre-cast structural shapes will be produced.

Exceptional opportunity for the right man.

In making application, please state experience and salary desired.

P-3310, Engineering News-Record
520 No. Michigan Ave., Chicago 11, Ill.

ENGINEERS

Long established firm of consulting engineers with world-wide practice needs both beginners and experienced civil, electrical, mechanical, and foundation engineers for interesting work on large dams, power-plants, and river control works. Permanent positions. Liberal employee benefits. Starting salaries dependent on qualifications. Please send complete resume to Hugo Niemi, Personnel Manager.

HARZA ENGINEERING CO.
400 W. Madison St. Chicago 6, Ill.

CIVIL ENGINEERS
ARCHITECTS
DESIGNERS - DRAFTSMEN

FOR

ARCHITECTURAL
SANITARY-HIGHWAY
DEPARTMENT

Progressive Firm
Opportunity for Advancement
Permanent Staff Positions
Liberal Benefits
Application Form on Request
or
Submit Resume - Minimum Salary

to

CHAS. W. COLE & SON
220 W. LaSalle Ave.
South Bend, Indiana

EXPERIENCED HYDRAULICS ENGINEER WANTED

Graduate engineer experienced in paper mill hydraulics, planning and development of piping layout systems, etc. for large expanding and progressive mill in Maryland. Good salary, all benefits and excellent opportunity for advancement. Send detailed resume of experience and education to
Director of Personnel
West Virginia Pulp & Paper Company
Luke, Maryland

STRUCTURAL DRAFTSMEN

FOR HIGHWAY BRIDGE WORK

In New York City and New Jersey

BROWN & BLAUVELT

468 Fourth Avenue, New York City

44 Cooper Street, Woodbury, New Jersey

SALES ENGINEERS

A major steel company has need for sales engineers to promote and sell fabricated products in middle Atlantic states. Excellent opportunities for men 28 to 30 years old with engineering background and a desire for sales work. Attractive starting salary with company car, expenses and bonus plan.

P-8324, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

Plan Your Future with BECHTEL in California on Hydro Electric Power Design

- Work in Los Angeles
- Liberal relocation allowances for you and your family
- Excellent facilities in area for advanced education
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Immediate Openings

Supervising Engineers
Hydraulic
Experience

Engineers
Civil
Hydraulic
Structural
Electrical
Mechanical

Designers
Piping
Electrical
Structural

Men experienced in design of earth-fill or concrete dams, spillways, penstocks and hydro electric power stations are desirable. Allied experience acceptable.

Send resume to
Manager of Employment & Placement
Industrial Relations Division

BECHTEL
Corporation
220 Bush St., San Francisco 4, Calif.

For an immediate personal interview you may phone:
Paul Keating, Plaza 7-4400, New York City
Joe Braddick, Fairfax 3-2401, Houston, Texas
Bill Milligan, Tucker 1549, Los Angeles, Calif.
Don Palmer, Douglas 2-4032, San Francisco, Calif.

Engineers Architects

Highway Designers—Draftsmen
Rochester & Harrisburg, Pa., Jackson, Miss. & Ft. Lauderdale, Fla.
Bridge Designers—Draftsmen
Harrisburg, Pa.-College Park, Md.-Ft. Lauderdale, Fla., Jackson, Miss.
Architectural Designers—Draftsmen
Rochester, Pa.
Civil Engineering Draftsmen
Jackson, Miss.
Ink Tracers—Computors
Rochester, Pa., Jackson, Miss.

Air Mail Resume TO R. L. SHAW, Personnel Director

MICHAEL BAKER, Jr., INC.
BAKER BLDG. *Consulting Engineers* ROCHESTER, PA.

HIGHWAY ENGINEERS

NEW OPENINGS
IN THAILAND
FOR

Construction Engineer
Road Construction Inspector
Soils Engineers
Bridge Construction Inspector
Survey Party Chief
Bridge & Road Designer

Must have college background and recent highway experience. Interviews arranged immediately for those qualified.

Send complete resume to:

SVERDRUP & PARCEL ENGINEERING CO.
1134 Locust St. St. Louis 1, Mo.

ESTIMATOR

Young man for Estimating Department of large building contractor. Permanent position with opportunity for advancement with aggressive, growing company. Experience in estimating desirable but not essential. Write stating fully education, employment, salary requirements, military status and personal data.

BLOUNT BROTHERS CONSTRUCTION COMPANY
P. O. Box 949 Montgomery, Alabama

RESIDENT ENGINEER AND DEPUTY RESIDENT ENGINEER

To supervise construction of $40,000,000 rockfill dam in the Middle East. Four-year completion schedule. Please send detailed experience and personal record. Specify salary expected and earliest date available.

HARZA ENGINEERING COMPANY
400 W. Madison St. Chicago 6, Ill.

ENGINEERS

Are you worth up to

$10,000 A YEAR?

Important permanent positions, paying from $6,500 to $10,000 a year with unusual future opportunity, have been created by the expansion program of our large, long-established engineering and construction firm. We need qualified engineers, designers and draftsmen experienced in structural, concrete, mechanical and piping design. Engineering offices are in several major American cities and Canada. Excellent working conditions. Generous company benefits. Our employees know of this ad.

Investigate this opportunity. Write today, giving age, education and experience. Your inquiry will be kept strictly confidential and will be answered promptly.

P-3067, Engineering News-Record
530 N. Michigan Ave., Chicago 11, Ill.

ENGINEERS

Civil & Structural

Permanent positions for squad leaders, designers and draftsmen with established consulting firm for large hydro-electric and irrigation projects. Liberal benefits. Salary commensurate with qualifications. Submit complete experience record and salary requirements.

ERIK FLOOR & ASSOCIATES, INC.
139 N. Clark St. Chicago 2, Ill.

DESIGNERS AND DETAILERS

Permanent positions in expanding bridge consultant's office. Profit sharing plan and health insurance included. Send experience and qualification resume with approximate salary requirements to:

HARRINGTON & CORTELYOU
802 Dwight Building Kansas City 5, Mo.

STRUCTURAL DESIGNERS

FOR HIGHWAY BRIDGE WORK

SENIORS and JUNIORS

Work in New York City and New Jersey

BROWN & BLAUVELT
468 Fourth Avenue, New York City
44 Cooper Street, Woodbury, New Jersey

ENGINEERS

Designers Detailers Draftsmen for work on Bridges, Expressways, Turnpikes

PERMANENT POSITIONS DEPENDING ON EXPERIENCE AND ABILITY
PAID VACATION, SICK LEAVE HOSPITALIZATION, LIFE INSURANCE
INCLUDE EDUCATION, EXPERIENCE, REFERENCES AND SALARY EXPECTED IN APPLICATION LETTER

Howard, Needles, Tammen & Bergendoff
1805 GRAND AVE. KANSAS CITY 8, MO.

CIVIL ENGINEER

British Guiana

Very good opportunity for young, married engineer interested in South America. Transportation furnished; company housing available. Require 5 years construction experience. In letter give age, education, types of construction projects handled, and salary required.

P-3365, Engineering News-Record,
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

SUPERINTENDENTS MASTER MECHANICS

Heavy Construction Equipment

Extensive mechanical experience and proven ability to supervise operators and mechanics required. Top starting salaries and opportunity for for advancement. Permanent work. Send complete details of personal background and experience to Personnel Director,

HECKETT ENGINEERING CO.,
612 North Main Street,
Butler, Pennsylvania

CIVIL ENGINEERS

Work and live in wonderful WISCONSIN

A rapidly expanding highway program offers:

Permanent civil service positions
Rapid advancement
Challenging work

Starting salary based on experience

Civil engineering degree or professional registration required.

Write to:

Personnel Officer
State Highway Commission of Wisconsin
State Office Building
Madison 2, Wisconsin

PROJECT ENGINEER

To take complete charge of organization and construction of large, multi-story, center city, apartment development. Must be experienced. Compensation commensurate with ability. Give complete details.

P-3331, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

HYDRAULIC DESIGN ENGINEER

With 5 to 10 years' experience in Water Supply and Sewage Works, including design of treatment units, hydraulics, hydrology, structures, piping and the equipment involved in such work. We can offer the man meeting these qualifications an adequate salary and promising future with a prominent New York firm.

P-2908, Engineering News-Record
Class. Adv. Div. P.O. Box 12, N.Y. 36, N.Y.

ARCHITECTURAL ENGINEER

Architectural Engineer between ages of 25 and 35 with interest in design of industrial buildings and structures.

Excellent opportunity with consulting engineering firm in Middle West. Liberal benefit plans and good working conditions.

Send resume of education and experience with statement of salary requirements to:

P-3222, Engineering News-Record
520 No. Michigan Ave., Chicago 11, Ill.

TOWN ENGINEER

Starting Salary, $7,000.00 per annum. To plan, direct and co-ordinate engineering activities for the Town of Glastonbury, Connecticut. Must meet requirements for registration as Professional Engineer in Connecticut.

Application forms may be obtained from Office of Selectmen, Glastonbury, Connecticut, Office of State Personnel Director, Hartford, Connecticut or from any office of the Connecticut State Employment Service. Applications must be returned or mailed to the Board of Selectmen, Glastonbury, Connecticut before midnight November 5, 1956.

SENIOR ENGINEER

(CIVIL—HIGHWAYS) FOREIGN EMPLOYMENT

Engineer with 15-25 years experience in highway design and construction supervision (including extensive administrative operations) required for highly responsible overseas position. Near East location. Liberal salary, transportation for family plus other attractive allowances and benefits. Send detailed personal history and experience record.

P-3156, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

ENGINEER

(CIVIL—OVERSEAS)
HIGHWAY MATERIALS and TESTING ENGINEER

Position: In charge of modern highway testing laboratory and materials survey in Near East.

Requirements: 15-20 years experience. Ability to organize and direct a country wide materials survey and train personnel in testing operations.

Top salary—good living conditions—liberal benefits including paid transportation for wife.

P-2966, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

CIVIL ENGINEER

With municipal experience on sewers and pavements to supervise field construction. Permanent position under Civil Service with retirement plan.

APPLY PERSONNEL DIRECTOR
City Hall, Royal Oak, Michigan

Quantity Surveyor and Draftsman

Permanent position with well established company of mason contractors. Give age, education, experience and initial salary expected in first letter.

P-3311, Engineering News-Record
520 N. Michigan Ave., Chicago 6, Ill.

CIVIL ENGINEER

Young civil engineer interested in broad application of civil engineering.

Excellent opportunity with consulting firm. Liberal benefit plans and good working conditions. Location Middle West.

Send resume of education and experience with salary requirements to:

P-3223, Engineering News-Record
520 No. Michigan Ave., Chicago 11, Ill.

SALES ENGINEERS

Architectural degree or equivalent experience desired. Job locations in mid western and eastern parts of United States. Contact Architects, Builders. Selling fabricated curtain wall panels and related steel products. Attractive salary, company car, expenses. Newly created sales division within nationally known corporation, opportunities unlimited. Send written resume to Personnel Manager, P. O. Box 1107 Harrisburg, Penna. Indicate preference as to working location and indicate present earnings.

POSITIONS VACANT

(Continued from page 122)

Graduate Civil Engineer. Salary $5100 to $5600. No experience necessary. Good working conditions, vacation and insurance allowances. P-3334, Engineering News-Record.

Associate Engineer ($425 to $575) in New Mexico Health Department, B.S. in civil or sanitary engineering. Write: Merit System, Box 939, Santa Fe, New Mexico.

One M.E. and one E.E. graduate designer-draftsman to design, prepare plans and specifications for mechanical and electrical systems of large commercial building projects, including plumbing, heating, air conditioning, water supply and sewage treatment, electrical distribution, power and lighting. Permanent, established firm. Gamble, Pownell & Gilroy, Box 2465, Fort Lauderdale, Fla.

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Civil Engineer with experience in prestress concrete design to locate permanently with fifty year old firm now in production of prestress members. If necessary will train. State experience, references and educational resume. The Dextone Company, P. O. Box 606, New Haven, Connecticut.

City Engineer: Unusual opportunity for graduate Civil Engineer or equivalent with professional license in southern Pennsylvania city. Experience essential in land surveying, street and sewer design and construction and related municipal work. Experience desirable in zoning and subdivision control. No structural design is involved. Would be in charge of Engineering Department, supervise survey crew and draftsmen, and would be expected to meet the public as required. Salary range $7,000 to $8,500 with usual benefits. Permanent non-political position for right man. Send resume of training and experience to: Borough of Chambersburg, 100 South Second Street, Chambersburg, Pa. Attention: J. G. Cree.

Need Assistant City Engineer. Require degree n Civil Engineering and municipal experience. Exceptional opportunity for rapid advancement. Beginning salary $450 to $500. Apply City Manager, Englewood, Colo.

Estimator—Buffalo, New York Area experienced on large building propects. Please furnish experience record and salary requirements. Johnson, Drake & Piper, Inc. 2760 Walden Avenue, P. O. Box 2567, Buffalo 25, New York.

Chairman of civil engineering department in college in New York State. Ph.D. desirable, not essential. Position open summer of 1957. P-3324, Engineering News-Record.

Professor or associate professor in civil engineering and mechanics. College in New York State. Term starting February or September 1957. Ph.D. desirable, not required. P-3328, Engineering News-Record.

Assistant City Engineer—Los Altos, California (pop. 19,215) invites applications from graduate engineers with 3 years experience or equivalent. Salary $508 to $635. An exceptional opportunity. Secure applications from Chief Administrative Officer, PO Box 1395, Los Altos, Calif. by Nov. 15, 1956.

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Wanted Engineers, Designers, Draftsmen All lines. Chemists, teachers and industrial engineers. Recent grads. Cleveland Engineering Agency 2132 E. 9, Cleveland.

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POSITIONS WANTED

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Construction Manager or Administr. assist. Civil Engr., estimating, cost-control & management specialist. Available now. Miller, 1609 N. McKinley, Okla. City 6.

Building Construction, over 30 years experience, estimating, buying, office management. Industrial, institutional and commercial projects. PW-3181, Engineering News-Record.

POSITIONS WANTED

Concrete Superintendent 32 years in concrete field batch & crushing plants. Experience, heavy construction, pre-cast, pier, power plants, industrial buildings, foundations, refineries, complete charge of placing & handling of concrete jobs up to 70,000 yds. Domestic or Foreign job. PW-3176, Engineering News-Record.

Project manager graduate professional engineer, 43. Heavy background in power and industrial plants—engineer — design — construction—management. Present project terminating. Staff available. PW-3287, Engineering News-Record.

Engineer — Structural, Construction. 28, B.C.E., P.E., seven years experience in coordination, design and job liaison on shopping centers, industrial buildings, power projects and warehouses. Can bring ambition, integrity and capacity for hard work to any position offering opportunity for professional growth. PW-3335, Engineering News-Record.

Construction Engineer overseas, sales administration over 10 years diversified construction and administration, refineries, heavy industrial construction. Presently executive assistant to vice president of large engineering firm. Speak four languages and have extensive overseas experience. Primary interest in overseas sales or construction supervision. Want to relocate away from East Coast. Single Civil Graduate available Nov. 15. PW-3298, Engineering News-Record.

By experienced heavy equipment salesman, connection with major shovel-crane manufacturer as representative in Southern territory. Background includes experience on distributor-manufacturer relations level, financing, promotion, and service. Well acquainted in Texas, Louisiana, Mississippi and Alabama and offshore operations. Complete details upon request. PW-3238, Engineering News-Record.

POSITIONS WANTED

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Civil Engineer, 50. Administrative, executive, expressways, bridges, steel and concrete structures, sewage, design and construction. Available Nov. 22 PW-3293, Engineering News-Record.

Construction Engineer. Age 32; B.S.C.E. 10 years field and office experiences in industrial construction. Available to contractor or owner for position anywhere. PW-3289, Engineering News-Record.

Superintendent Engineer—20 yrs experience-all types roads-excavation structures-sewer & water lines. PW-3315, Engineering News-Record.

Construction Executive. Chief Estimator fully experienced, quantity survey to completion, subs, purchases, job manage heavy industrial, commercial, monumental prefer N. Y., N.E., Mid-Atlantic States. PW-3313, Engineering News-Record.

Engineer-Attorney—B.S. Civil (Const.) Eng. with 4 yrs. exp. Former contract & trial attorney U.S. Corps of Engineers—Commercial pilot. Desires position with Const. or Eng. firm southeast. PW-3321, Engineering News-Record.

Construction Management—BSCE—27, excellent management experience heavy industrial construction. Top level planning, scheduling, cost-control, field management and administrative experience. Registered. Now employed, present salary $13,000. Desires Southwest or West Coast location. PW-3319. Engineering News-Record.

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(Classified Advertising)

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NEW YORK: P. O. Box 12 (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

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Contract Disputes? Government construction contractors who have contract questions under dispute are offered my experience in the settlement or the appeal of said disputes. SS-2433, Engineering News-Record.

Mail Order Opportunity—Exciting home business or office side line. Mail order executive will show you how to net large profits with no investment in merchandise or advertising required. Experience not necessary. Proven practical, fully explained in free confidential letter. Write: Impact! Inc. 2108 Payne Avenue. Dept. 29-11, Cleveland 14, Ohio.

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30 ton American #2 Guy Derrick. 90' Bm.
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65 ton Whitcomb Diesel Elec. Loco. 1945.
1½ yd. Northwest #o Diesel Crane New 1948.
1½ yd. Bucyrus Erie 38B Diesel Crane. 1948.
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Used 13 yd. bottom dumps
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Located - Texas - Pa. - N. Y. State
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6160 Bucyrus Monighan Elec. Drag, 160' 8 yd.
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7200 Marion Drag, 120', 7 yd.
200-W Bucyrus Monighan Drag, 140', 6 yd.
2400 Lima Drag, 120', 6 yd.
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120-B Bucyrus Erie Elec. Drag, 115', 5 yd.
111-M Marion Drag, 80' 5 yd.
1055 P&H Drag, 110', 4 yd.
1201 Lima Drag, 85', 3 yd.
3500 Manitowoc Drag, 80', 2½ yd.
1001 Lima Drag, 80', 2½ yd.
955 P&H Drag, 100', 2½ yd.
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80-D Northwest Drag, 85', 2½ yd.
170-B Bucyrus Erie Elec. 6½ yd. Shovel
1600 P&H Elec. 6 yd. Shovel
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54-B Bucyrus Erie 2½ yd. Shovel
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PRACTICALLY NEW
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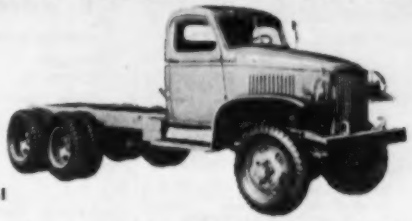

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1—INDUSTRIAL BROWNHOIST Model L Steam Locomotive Crane Serial #5049, with oil-fired boiler equipped with 110' steel erecting boom, 25' jib mounted on 50-ton carbody. Capacities with 50' boom: 40-ton @ 12' radius without outriggers, 50-ton at 12' radius with outriggers. Boiler completely refluxed in 1953. In excellent condition. Priced cheap for quick sale.

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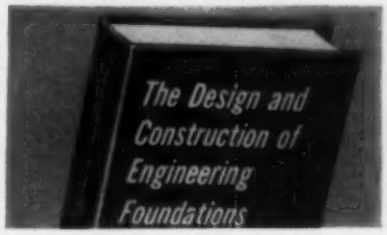

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Editorials

A Future Worth Planning For

IS THE ENGINEERING PROFESSION ADEQUATE in size, makeup, training and outlook to serve society in the manner it has a right to expect in a world churning with technological advance? Is the civil engineering profession able to do its part in this common effort by virtue of its competence on the one hand and its ability to assure satisfying careers to its own members on the other?

These questions, which have increasingly thrust themselves on the consciousness of leaders of the profession—and indeed on thoughtful people in all walks of life—came before the directors of the American Society of Civil Engineers in decisive form at their last meeting. Would the society support a survey of the engineering profession to determine the answers, and thus to reveal the nature and extent of whatever corrective measures are necessary to meet the challenge of the future?

The directors responded in as statesmanlike an action as the ASCE has ever taken. Asked to support a survey of the overall engineering profession, to be jointly sponsored by Engineers' Council for Professional Development and Engineers' Joint Council, they pledged $10,000 of ASCE funds for the purpose. And then to be doubly certain that the civil engineering aspects of the problem will be adequately probed, they budgeted another $15,000 for a separate survey, which in fact had been under consideration before the ECPD-EJC proposal had come to their attention.

From this two-pronged attack there unquestionably will emerge more significantly useful information on the civil engineering profession and its place in the country's technological structure than has ever before been available. As a corollary, a reasoned program for the growth and development of the profession should be possible for the first time in history.

In view of the many problem areas that exist—the engineer's place in government, industry and society generally, the working relationships of the various branches of engineering, the questions of salaries and fees, of ethics, of manpower, of registration and of unionization—such a program was never more needed. Likewise, because of the kind of future that lies ahead, it could not be more promising of reward and satisfaction.

Is Civil Engineering Manpower Adequate?

ONE OF THE PROBLEM AREAS, referred to in the above editorial, is that of engineering manpower, about which the charge most frequently heard is that it is in short supply. The shortages quoted, however, are always in big, round, impressive numbers of engineers or engineers-plus-scientists. Always lacking is anything definite on how many of what kind of engineers are needed, on what can be done about it or, indeed, on whether there is an actual shortage. Convinced that this situation required some improvement in so far as information on civil engineers and other engineers in construction is concerned, we sought to compile and analyze some definite information. The results of this study will be published as an ENR Special Report in next week's issue.

From a look at the supply-demand picture this general conclusion emerges: There is a shortage of manpower in construction, but it is not yet critical. Also, there are many things that can be done to make it less critical short of waiting for more young people to grow up and graduate from engineering schools. These points, detailed and supported in the report, are worth emphasizing.

If it is true that no critical shortage of engineering manpower exists in construction—no severe threat to national security or economic progress—then the current situation of demand exceeding supply should be no cause for hysteria in our field. So let's keep control of the situation, correct it by the many means that are available, and not be stampeded into programs seeking spectacular cures which could lead into another period of supply exceeding demand for civil engineering manpower. And, fortunately, there are means of correction at hand.

Denied the possibility of any quick increase in the manpower supply, these corrective measures logically focus on increasing engineering output with the manpower available. The study revealed agreement on two measures of outstanding promise—greater use of technicians and better control of turnover. Civil engineering and construction employers generally have lagged in their utilization of technicians. They have also permitted turnover to get out of control—by too low salaries and then by bidding against one another for men—with a consequent drain on the efficiency of the entire engineering work force.

For the long haul there are other things that can be done to assure an adequate supply of engineering manpower—guide young people into the field, give aid to education, recruit graduate engineers more effectively. But the solution now is to upgrade the pay and positions of existing engineers, reduce their job turnover and supplement their efforts with those of able technicians.

Implicit in all the findings of ENR's study of the manpower situation is the idea that both the long and short range solutions of the problem rest in the hand of the construction industry and the civil engineers themselves. Manpower is not critically inadequate. By means which are available it can be made sufficiently productive to be entirely adequate for all of the great tasks that lie ahead.

Lower photo shows 500-ton concrete roof for main auditorium (upper center) of Temple Isaiah, Los Angeles, Calif. Archt.—Kenneth N. Lind, A.I.A.; Struc. Engr.—Brandow & Johnston; Contr.—Zimmer Construction Co.; Sub. Contr.—Vagtborg Construction Co.; Pozzolith Ready-Mixed Concrete supplied by Consolidated Rock Products Co.—all of Los Angeles, Calif.

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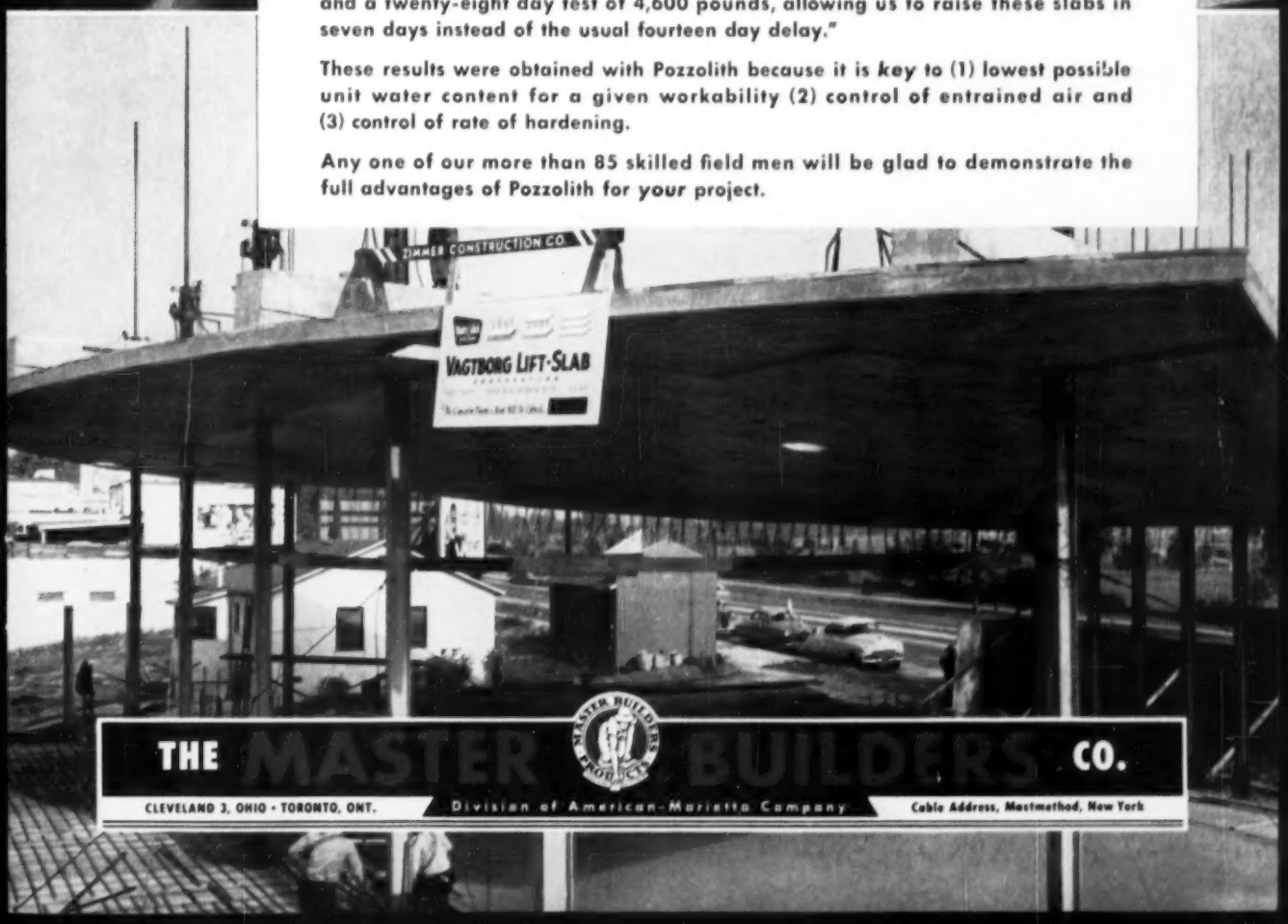

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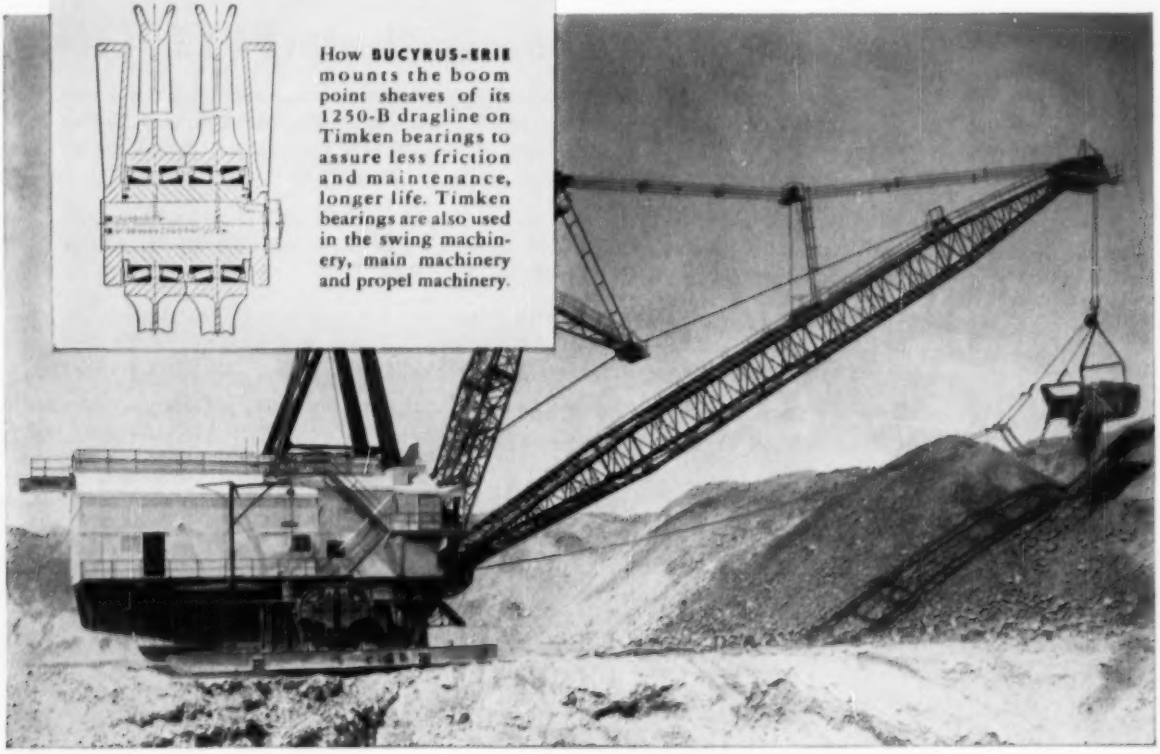

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